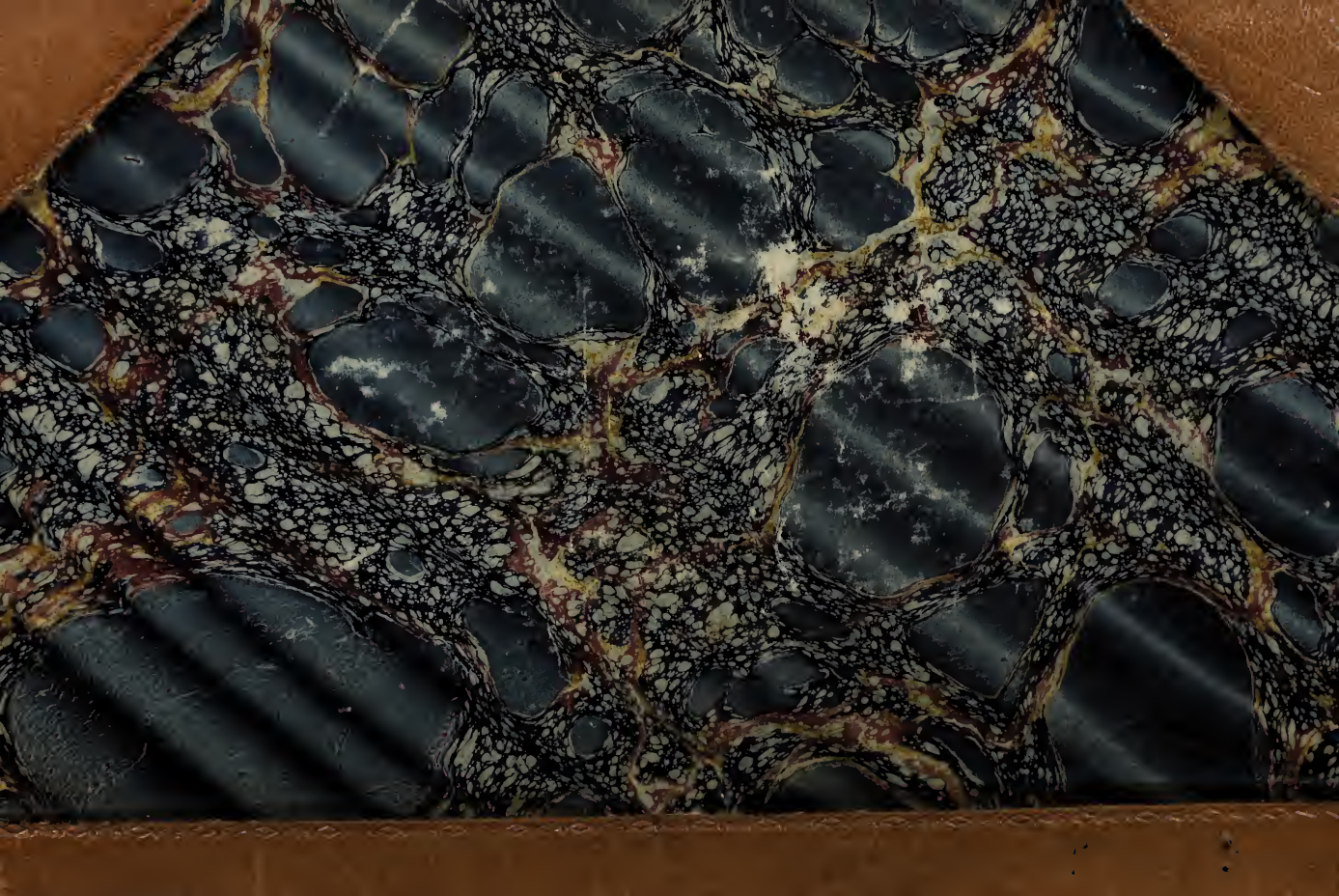

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CALENDAR

OF

Queen's University and College,

KINGSTON, CANADA.

SESSION 1872-73.

INCORPORATED BY ROYAL CHARTER.
A.D. 1841.

KINGSTON:
PRINTED FOR THE UNIVERSITY AT THE DAILY NEWS OFFICE.
1872.

UNIVERSITY OFFICERS.

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PROFESSOR MURRAY—Principles and Practice of Elocution.

DONALD MACLEAN,Esq., M D.—Human Physiology.

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THE LIBRARY.

Curators.—The Principal, Professor Murray, Professor Mowat.

Secretary—Prof. Mowat. Librarian—Prof. Dupuis.

Curator of the Museum—The Professor of Natural History.

Janitor—John Cormack.

BENEFACTIONS.

ENDOWMENTS AND BEQUESTS.

St. Andrew's Church Ladies' Association, Toronto—Scholarship	$ 800 00
Ladies of Kingston—Scholarship...	1,113 00
His Royal Highness, The Prince of Wales—Prize	800 00
The late John Mowat, Esq., Kingston—Scholarship	800 00
Rev. Alexander Lewis, Mono—Prize	400 00
The late George Michie, Esq., Toronto...	2,000 00
The late Edw. H. Hardy, Kingston	400 00
Mrs. Glass, Sarnia, for Henry Glass Memorial Scholarship...	500 00
A gentleman in New Brunswick, Dominion Scholarship ...	600 00
Friends of the late Principal Leitch in Scotland and Canada—Scholarships	2,433 33
Subscriptions from 15th Jan. 1869, to 1st May, 1871—to revenue $5,450.94; to endowment $87,758.16	93,209 10

ANNUAL CONTRIBUTIONS.

Sir Hugh Allan, Montreal—Scholarship	50 00
Hon. Alexander Campbell, Senator, Kingston—Scholarship	80 00
John Watkins, Esq., Kingston, "	80 00
Mrs. E. H. Hardy—Memorial Scholarship	50 00
Students' Association, St. Andrews, Scotland—Scholarship .	36 48
Students' Association, Aberdeen, Scotland—Scholarship ...	33 80
A Friend, Kingston—Cataraqui Scholarship	50 00
St. Paul's Church, Montreal—Two Scholarships	120 00
Montreal Prizes	50 00
General Assembly, Church of Scotland	1,715 00

DONATIONS, 1871–2.

To the Library—Mrs. Machar, Kingston, 160 vols.; U. S. Naval Observatory, 3 vols.; U. S. Government, 4 vols.; E. Jenkins, Esq., London, Eng., 3 vols.; Rev. J. Eakin, Kippen, 2 vols.; Mrs. C. Low, Montreal, 6 vols.; Dominion Government, 6 vols.; Single volumes, 5.

To the Museum—Specimens and miscellaneous articles from Allan Macpherson, Esq., and Mrs. Machar, Kingston; Dr. Dupuis, Odessa; Rev. Dr. Bell, Clifton; W. Jennings, Toronto; W. C. Canning, Mono; A. P. Knight, Renfrew; W. A. Lang, Almonte.

ENDOWMENT FUND.

The endowment scheme, begun in anuary, 1869, has now realized for capital $87,758.16, including $7,807.90, loaned to meet recent deficiencies in College revenue. To be adequate the fund should be $150,000. Privileges are connected with paid subscriptions as follows:—

1. Each subscription of $500 is the foundation of a SCHOLARSHIP bearing in perpetuity the subscriber's name or any other name which the subscriber may give it; the annual value of the Scholarship is the privilege allowed to one student to attend College free of class fees (at present $20 per session); the Scholarship is awarded annually as the subscriber directs in writing; after the subscriber's death it is tenable by his lineal representatives in order of seniority.

2. Subscribers of $100, $200, $300, and $400, have the right to nominate at any time during life, one, two, three or four students respectively, to a full course in Arts free of class fees.

Subscribers not entitled to privileges may still acquire them, by making their subscriptions conform to these regulations.

Certificates of privileges secured have been issued as follows:—

I. NOMINATIONS.

(Value, 216x100=$21,600.)

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CLIFTON—Rev. G. Bell, LL.D., Rev. J. Y. Cameron, B.A.

CARLETON PLACE—J. Gillies, R. Bell.

PERTH—J. G. Malloch, J. Motherwell, J. Wilson, T. Mansfield, Rev. W. Bain, D.D., Rev. T. Hart, M.A.

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Chelsea—J. Mather.
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Stirling—D. McDougall.
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Nelson—P. McCulloch.
Hawkesbury—A. Urquhart.
Milton—J. Sproat, A. Sproat.
Scotland—R. Snodgrass.
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Dundas—T. Wilson, J. Bertram.

II. SCHOLARSHIPS.

(Foundation value, 56x500=$28,000.)

Andrew Allan 2 ...Montreal.
Bronson (H.F.) .....Ottawa.
Bronson (E. H.) ..... "
Buntin (Alex.) 2 ...Montreal.
Cameron(JohnA.)...Summerstown.
Campbell(Hon.A.)...Kingston.
Cluness (W.R.) 2 ...Sacramento.
Crawford (Alex.) ...Montreal.
David Law..... "
Dennistoun(Judge)2 Peterboro'.
Doran (Michael) 2...Kingston.
Fleming (Sandford) Ottawa.
Fulton (Alex. T.) ...Toronto.
Gillies (John).....Middleville.
Gilmour (Allan) 2....Ottawa.
Greenshields (D.J.) Montreal.
Hardy (Edw. H.) ...Kingston.
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Murray (Prof.) ....Kingston.
Paton, (John) .....New York.
Perth (A Friend) .....Perth.
Rankin (John) 2.....Montreal.
Reikie (R. J.)..... "
Shedden (John).....Toronto.
Smith (John) .....Montreal.
Snodgrass (Principal)2...Kingston.
Stephen (George) 2.....Montreal.
Stewart (Mrs. W.).....Ottawa.
Thos. McKay*(Heirs) "
Urquhart(Alex.).....Montreal.
Williamson (Prof.) .....Kingston.
Wm. Dow*(Mrs&Miss)2Montreal.

*Memorial Scholarships.

GENERAL ANNOUNCEMENTS.

QUEEN'S COLLEGE has, under its Royal Charter, "the style and privileges of a University."

The thirty-first Session will be opened on the first Wednesday (2nd) of October, 1872, at 3 o'clock P.M., when an address will be delivered by Professor Dupuis.

Kingston is easily accessible on account of its central situation, and is one of the healthiest localities in Western Canada.

☞ *Students are particularly requested to give attention to the contents of the following pages, as all intimations shall be strictly adhered to.*

☞ A complete compilation of Statutes and By-laws, containing information as to scholastic requirements and defining the duties of Students, is published separately. Copies may be obtained on application to the Registrar.

BOARDING.—No Student is allowed to board or lodge in any house not approved of by the Senate, except by permission of parents or guardians given in writing. Information as to approved houses may be obtained from the Registrar. The expense of suitable boarding is moderate.

REGISTRATION.—All Students are required to have their names and other particulars entered in the University Register.

At the time of Registration they must produce a certificate of character from their ministers or other competent persons and the College Treasurer's receipt for Fees, and must sign a declaration promising due respect and obedience to the University authorities, a careful and diligent attention to their studies, and a courteous and peaceable behaviour towards their fellow students.

Entrance Examinations.—The subjects of these will be found under the head of "Examinations" in connection with each Faculty. Students not intending to graduate are not required to appear at the Matriculation Examinations, but are recommended to do so, in order to satisfy themselves as to their fitness to enter classes with advantage.

Morning Prayers.—All Students must attend morning prayers, except when absence is allowed by the Principal or the Senate. The attendance is marked in the University certificates. They must also attend the churches to which they profess to belong, and produce certificates of attendance from their clergymen when required.

The Library contains over 8,800 volumes. All registered Students are entitled to the use of it, subject to By-laws.

The Observatory.—In 1855 subscribers, aided by the City Corporation, founded an Astronomical Observatory, which was transferred by deed to the University in 1861. Barometer and Thermometer indications are observed twice a day, and the results supplied weekly to the Press. Local time is regularly given to the city clock-keeper.

The Museum.—The Mineralogical and Palæontological collections are extensive and valuable. Occasional demonstrations are given to Students. Friendly services towards the furnishing and enlargment of the Museum are solicited.

Fees.—The following fees are payable strictly in advance—Class fees on University day (16th October); Graduation fees on or before 22nd April.

Class fees—Full course in Arts, per session	$20 00
" One year's classes not part of full course... ...	25 00
" A single class in any department	5 00
Registration, per session	4 00
Apparatus	2 00
Matriculation Examination	1 00
Pass Examination...	2 00
Graduation Fee, Bachelor of Arts (B.A.)	10 00
" Master of Arts (M.A.)...	20 00
Bachelor of Divinity (B.D.)	20 00
Admission *ad eundem gradum*, B.A.	10 00
Do. do. M.A.	20 00

ACADEMIC YEAR 1872–3.

1872.	
Oct... 2	Session begins.
3	Matriculation Examinations in Arts begin.
7	Examinations for Mowat and Cataraqui Scholarships.
16	University Day—Registration, &c.
Nov... 8	Matriculation Examinations in Theology begin.
15	Written Examinations.
Dec... 7	Matriculation Examinations in Medicine.
20	Written Examinations.
23	Christmas Holidays begin.
1873.	
Jan... 7	Classes re-open.
10	Statutory Meeting of Senate.
Feb... 7	Written examinations.
15	Time for receiving Theses for M.D. expires.
March 7	Written Examinations.
10	Time for receiving subjects of Theses for M.A. expires.
12	Primary and Final Examinations in Medicine begin.
April 2	Written Examinations.
	Notices of intention to appear at ensuing Examinations required.
4	Class-work in Arts closes.
7	Time for receiving Theses for M.A. expires.
8	University Examinations in Arts begin.
11	Class-work in Theology closes.
16	University Examinations in Theology begin.
22	Statutory Meeting of Senate.
24	Convocation for distributing Prizes, announcing Honours, laureating Graduates, and electing Fellows.

FACULTY OF ARTS.

Intrants may complete the following course for Graduation in three sessions, by passing satisfactorily the second Matriculation Examination. Students not intending to graduate may take any of the classes without regard to the prescribed order. In all the classes there are frequent oral examinations besides a monthly examination conducted in writing.

Matriculation Examinations begin on 3rd October.

I. ATTENDANCE.

Hours	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*
			FIRST YEAR.		
9	Greek.	Greek.	Greek.	Greek.	Greek.
10	Mathematics.	Mathematics.	Mathematics.	Mathematics.	Mathematics.
11	Latin.	Latin.	Latin.	Latin.	Latin.
12	Eng.Language.		Eng.Language.	Eng.Language.	
			SECOND YEAR.		
9	Mathematics.	Mathematics.	Mathematics.	Logic.	Logic.
10	Classics.	Classics.	Classics.	Classics.	Classics.
11	French.	Chemistry.	French.	French.	Chemistry.
12	Chemistry.	Eng.Literature.	Chemistry.	Chemistry.	Eng.Literature.
			THIRD YEAR.		
9	Botany.	and	Zoology.	French.	French.
10	Metaphysics.	Metaphysics.	Metaphysics.	Metaphysics.	Metaphysics.
11	Nat.Philosophy.	Nat.Philosophy.	Nat.Philosophy.	Nat.Philosophy.	Rhetoric.*
12		Classics.		Classics.	Classics.
			FOURTH YEAR.		
9	German.†	German.†	German.†	Geology.	Geology.
10	History.	History.	History.	History.	History.
11	Ethics.	Ethics.	Ethics.	Ethics.	Nat.Philosophy.
12	Nat.Philosophy.	Classics.	Nat.Philosophy.	Classics.	Classics.

*Attendance is compulsory, but the Subject is not prescribed for University Examinations.

†Attendance is optional. A Class will be formed if a sufficient number of Students offer.

II. DEPARTMENTS AND SUBJECTS OF STUDY.

1.—CLASSICS.

First Year.

LATIN.	GREEK.	COLLATERAL SUBJECTS.
Cicero in Catilinam, I.	Homer, Iliad, Book VI.	Latin Composition.
Virgil, Æneid, Book XII.	Lucian, Timon.	Latin Prosody.
Horace, Odes, Book III.	Gospel by John.	Roman Antiquities.
Cicero pro Archia.	Xenophon, Anabasis, Bk. V.	Additional for Honours.
Horace, Epodes.	Homer, Odyssey, Bk. XII.	

Second Year.

Cicero de Oratore, Bk. II.	Demosthenes, Philip. III.	Latin Composition.
Virgil, Georgics, Bk. I.	Euripides, Alcestis.	Greek Composition, Prosody,
Livy, Bk. XXII.	Acts of the Apostles.	and Antiquities.
Tacitus, Annals Bk. I.	Herodotus, Bk. VI.	Additional for Honours.
Horace, Ars Poetica,	Homer, Odyssey, Bk. XXI.	

Third Year.

Tacitus, Agricola.	Sophocles, Antigone	Latin Composition.
Juvenal, Satire X.	Plato, Apology.	Greek Composition, Prosody,
	Epistle to the Ephesians.	and Antiquities.
Livy, Book XXI.	Demosthenes, Philip. II.	Additional for Honours.
Cicero pro Ligario.	Pindar, Olympic Odes.	

Fourth Year.

Plautus, Aulularia.	Thucydides, Bk. I.	Latin Composition.
	Æschylus, Prometheus	Greek Composition, Prosody,
		and Antiquities.
Lucretius, Bk. V.	Demosthenes, de Corona.	Additional for Honours.
	Hesiod, Works and Days.	

2.—MATHEMATICS AND NATURAL PHILOSOPHY.

First Year.—MATHEMATICS.

Euclid I.–VI. (Simson). Algebra (Wood, pp. 1-174, omitting pp. 136-161.) Collateral Subjects. Trigonometry. Logarithms. Exercises.

Additional for Honours—Problems in Geometry and subjects in Wood's Algebra, pp. 136–161.

Summer work for second Matriculation Examination—Euclid XI., 1–21, 33, XII. 1, 2, with 1st Lemma, (Simson). Algebra—Arithmetical, Geometrical and Harmonical Progressions, Permutations and Combinations. (Wood, ed. 1861, pp. 161–180.)

Second Year—Mathematics.

Plane and Spherical Trigonometry (Snowball). Conic Sections, (Whewell). Analytical Geometry (Hann's in Weale's Series).

Collateral subjects: —Exercises. Plane and Geodetical Surveying, with the use of Surveying and Astronomical instruments.

Additional for Honours—all the Mathematics of the previous course.

Summer Work for third Matriculation Examination—Mensuration (Weale's Series pp. 19—66). Hydrostatics (Galbraith and Haughton, chaps. I–II).

A Prize will be awarded for the best solutions of the problems in Snowball (ed. 1863), p. 149, § XIX. 1–12, inclusive and p. 158, § XXIV. 1–9, inclusive, given in by the 15th October.

Third Year—Natural Philosophy.

Mechanics (Galbraith and Haughton's). Hydrostatics (do). Draper's Natural Philosophy. Analytical Geometry and Differential Calculus one day in the week (Ritchie, Hall). Collateral subjects:—Problems in Mechanics and Hydrostatics.

Additional for Honours—Earnshaw's Statics, chap. III.

Summer work for fourth Matriculation Examination—Optics (Dupuis), pp. 9–30.

Fourth Year—Natural Philosophy.

Lectures. Astronomy (Galbraith and Haughton's). Integral Calculus one day in the week. Collateral subjects. Problems in Natural Philosophy. Essays.

Additional for Honours—Elements of the Differential and Integral Calculus; Evan's Newton's Principia, ed. 1855, secs. II. and III. pp. 26–52., or the same propositions in Frost's Edition 1863.

3—LOGIC, METAPHYSICS, AND ETHICS.

Second Year—Logic.

Text-book—Whately's Logic. Lectures.

Additional for Honours—Mill's Logic, Book III.

Subject of Summer Essay—*Induction.*

Third Year—Metaphysics.

Text-book—Outline of Hamilton's Philosophy, by Prof. Murray. The Lectures treat of

The Science of Knowledge. I. Knowledge in general. II. Knowledge in its special forms. § 1. Intuitive. (1) Presentative. (*a*) Self-Consciousness. (*b*) Perception. (2) Representative. (*a*) Its kinds. *a.* Simple Imagination. *β.* Memory: (*b*) Its Laws. § 2. Comparative. (1) Judgment. (2) Reasoning. (3) Generalization. (4) Poetic imagination. (*a*) Beauty. (*b*) Art.

Additional for Honours—Schwegler's History of Philosophy, §§ 1–22 inclusive.

Subject of Summer Essay—*Visual Perception.*

Fourth Year—ETHICS.

Text-book—Stewart's Outlines of Moral Philosophy, by McCosh. The Lectures embrace

A. *Ethics, or the Science of Formation of Character.* I. The Feelings. II. The Appetencies. III. Ethical action. IV. Ethical Consciousness. V. Duties. VI. Virtues.

B. *Ontology, or the Science of Existence.* I. Existence in general. II. Existence in its special forms. § 1. The Ego or mind. § 2. The Nonego or matter. § 3. The Universe. § 4. God.

Additional for Honours—Schwegler's History of Philosophy, §§ 23–38 inclusive. Mackintosh's Dissertation on the Progress of Ethical Science.

Subject of Summer Essay—*Epicureanism, historically and critically considered.*

N.B. All summer Essays in the Department must be given in or before 15th Nov.

4—CHEMISTRY AND NATURAL HISTORY.

Second Year—CHEMISTRY.

The Lectures treat of the principles of Inorganic and Organic Chemistry, and are illustrated by diagrams and experiments.

Additional for Honours—Physical Chemistry in Draper's Chemistry.

Third Year—BOTANY AND ZOOLOGY.

The Lectures on Botany embrace the principles of the Science, both structural and physiological, with an outline of the nature and systems of classification; those on Zoology treat of the functions and classification of animals. The subjects are illustrated by specimens and diagrams.

Additional for Honours—a special paper on Botany, and Milne Edward's Manual of Zoology, Part I.

Fourth Year—MINERALOGY AND GEOLOGY.

Lectures on these subjects are illustrated by specimens of minerals, rocks, and fossils, and by diagrams.

Additional for Honours—Ansted's Applications of Geology, and Chapman's Geology of Canada.

5—HISTORY, ENGLISH LITERATURE, AND MODERN LANGUAGES.

First Year—ENGLISH LANGUAGE.

Text-book—Shute's Manual of Anglo-Saxon. The lectures treat of the language in respect to its composition, vocabulary, and changes.

Second Year—English Literature.

Lectures. Additional for Honours—The Literature of the 17th and 18th centuries in Smith's edition of Shaw's Manual of English Literature.

Subject of Summer Essay—*The Life and Writings of Chaucer.* The essays must be given in on or before 1st November.

Fourth Year—History.

I. Ancient History. Text-book—Schmitz's Manual of Ancient History. Lectures on (1) the migrations of the human family; (2) the origin of the Greeks and Romans respectively and their influence on civilization.

II. Modern History. Text-book—White's Eighteen Christian Centuries. Lectures on the History of the English Constitution.

Second and Third Years—French.

Junior.—Text-books—De Fiva's Grammar and Voltaire's Charles xii.

Senior.—Text-books—Voltaire's Zaire, Corneille's Cid.

CLASS PRIZES.

Prizes may be awarded by the Professors for eminence in any kind of class-work, but they are usually determined by the written examinations and exercises.

III. UNIVERSITY EXAMINATIONS.

These must be passed in order by all candidates for the Degree of Bachelor. They are in writing chiefly, and correspond to the several years of the course, as follows:—

First Matriculation admitting to the rank of Undergraduates.

Classics.—Virgil, Æneid, Bk. II.; Translation of English into Latin Prose; Greek Grammar; Lucian, Charon.

Candidates may profess equivalent portions of other Classical works, but in so doing cannot compete for rank or Scholarships.

Arithmetic.—As far as Extraction of Roots, inclusive.

Algebra.—To end of Simple Equations: Geometry—Euclid, Bks. I-II.

English—Bullion's Analytical and Practical Grammar.

Second, third and *fourth Matriculation* on subjects of first, second and third years respectively (except French in the last), with additions prescribed in the different Departments.

First, *second*, and *third Pass*, on the work of the first, second and third sessions respectively (except French in the second).

Final, for B.A., on the books and subjects prescribed for the fourth year's classes.

Honours may be taken in any Department, but only when candidates pass in all Departments.

MARKS FOR UNIVERSITY EXAMINATIONS.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.	FOURTH YEAR.
Classics.....2000	Classics.....1000	Classics.....1000	Classics.....1000
Mathematics.....1000	Mathematics.....1000	Nat. Philosophy..2000	Nat. Philosophy..1000
English Language1000	Logic.....1000	Metaphysics 2000	Ethics.... 1000
	Chemistry..... 1000	Natural Science..1000	Natural Science..1000
	EnglishLiterature1000	French.....1000	History 1000

DEGREE OF MASTER (M.A.)

This Degree cannot be taken until after two years from the date of graduation as Bachelor. The candidate must compose a satisfactory Thesis on some subject taught in the Faculty or closely bearing upon one of the Departments. Intimation of the subject must be given to the Secretary of the Senate on or before 10th March, and the Thesis must be in his hands on or before 7th April, together with a certificate of moral character and of age which must be at least twenty-one years.

Graduates of other Colleges are admitted *ad eundem gradum* (B.A., or M.A.), on producing satisfactory proof of rank and character.

The Degree of Doctor of Laws (LL.D.), is honorary, and is awarded for literary, scientific, or professional distinction.

FACULTY OF THEOLOGY.

Matriculation Examinations begin on Friday, 8th Nov.

The prescribed order of classes must be observed by all students intending to graduate or having in view the ministry of the Presbyterian Church of Canada in connection with the Church of Scotland.

1—DIVINITY.

Hours—9–10 A.M., and 2–3 P.M.

Lectures on Systematic Theology, the Pastoral Office, and Homiletics, with prelections and examinations on Hill's Lectures on Divinity, Butler's Analogy, Paley's Evidences, and Greek Testament for Doctrinal Exegesis. Students have opportunities of conducting devotional exercises, practising pulpit elocution, and performing missionary work.

2.—HEBREW, CHALDEE, SYRIAC, AND ARABIC.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.
10—11 A.M.	4—5 P.M.	11—12 A.M.
Wolfe's Hebrew Grammar.	Gesenius' Hebrew Grammar.	Gesenius' Hebrew Grammar.
Genesis I-III.	Prov. XX-XXI.	Ps. I-XXX; Jer. VIII-X.
Exodus IV.	Job XXXVIII-XLI.	Translations into Hebrew.
Nahum.	Eccles. I-III.	Rigg's Chaldee Manual.
Translations into Hebrew.	Isaiah LII-LIV.	Ezra IV; Daniel II-III.
	Translations into Hebrew.	Uhlemanns' Syriac Grammar.
		Syriac New Testament.
		Stewart's Arabic Grammar.
		Arabic Old Testament.

3.—BIBLICAL CRITICISM.

FIRST AND SECOND YEARS.	THIRD YEAR.
Tues., Wed., and Fri., 3—4 P.M.	*Tues., Wed., and Fri.*, 12—1.
Epistles to Philippians, Colossians, and Philemon, in Greek.	Acts of Apostles in Greek.
Ellicott on Philippians, Colossians, and Philemon.	Trollope on Acts.
Angus' Bible Handbook,	Angus' Bible Handbook.
Lectures.	Lectures.

4.—CHURCH HISTORY.

FIRST AND SECOND YEARS.	THIRD YEAR.
Mon. and Thurs., 3—4 P.M.	*Mon. and Thurs.*, 12-1.
Killen's Ancient Church.	Wharey's Church History.
Lectures.	History of the Church of Scotland.
	Lectures.

The Church requires the following discourses to be delivered during the Course:—Homily and Exegesis; Lecture and Greek Exercise; Sermon and Hebrew Exercise. Two are required each session in order.

SUBJECTS OF MATRICULATION EXAMINATION.

First Year.—Westminster Confession; Hill's Lectures, Bk. I., Chaps. 2, 3, 4; Gospel by Mark in Greek and English.

Second and Third Years.—DIVINITY, CHURCH HISTORY, and BIBLICAL CRITICISM—Portions of Text-books used last Session. GREEK TESTAMENT—Ephesians IV–VI, Ellicott on do.; HEBREW—*Juniors*—Grammar, Isaiah LV-LVII—*Seniors*—Grammar, Ezek. XXXV-XXXVIII.

PASS EXAMINATIONS on the work of each session.

MARKS:—Divinity, 240 (Hill, &c., 100, Butler 80, Paley 60); Hebrew and Chaldee, 150; Biblical Criticism, 100; Church History, 50.

DEGREE OF BACHELOR OF DIVINITY (B.D.)

To obtain this Degree three-fourths of the marks allotted to each of the following subjects must be gained at the Final Examinations:—

1. Prelections of the Third Session.
2. Greek—Acts of the Apostles.
3. Wharey's Church History and History of the Church of Scotland.
4. Angus' Bible Handbook, Ch. IV., Rules of Interpretation.
5. Hebrew—Psalms I—XXV.; Chaldee—Daniel II.—III.
6. Paley's Evidences.
7. Butler's Analogy.
8. Hill's Lectures (Evidences excepted).

Alumni of former years or of other Colleges may compete for the Degree. In their case the subjects of Examination are 2, 3, 4, 6, 7, 8, of the above list; Hebrew. Exodus I –XXI., and Psalms I.–XLI.; Chaldee, Daniel II., III. All candidates must be Bachelors of Arts.

The Degree of Doctor of Divinity (D.D.) is honorary, and is given for literary, scientific, or professional distinction.

SCHOLARSHIPS.

With the exceptions noted below, scholarships are awarded upon the Matriculation Examinations of the years with which they are respectively connected. (See By-laws). The years of the course in which they are tenable are indicated below in the last column but one.

FACULTY OF ARTS.

No	NAME.	BY WHOM AND WHEN FOUNDED.	VALUE *a*		
1	MOWAT *c*	Late John Mowat, Esq., Kingston...1861.	$50 00	1	*b* O.
2	CAMPBELL *d*	Hon. Alex. Campbell, Kingston.....1862.	80 00	1	O.
3	WATKINS *e*	John Watkins, Esq., Kingston.....1862.	80 00	1	O.
4	LEITCH MEMORIAL (1)	Subscribers .....1866.	57 00	1	O.
5	ST. PAUL'S CHURCH (1)	Congregation of St. Paul's, Montreal 1865.	60 00	1	S.
6	ALLAN	Hugh Allan, Esq., Montreal .....1857.	50 00	1	S.
7	HARDY MEMORIAL	Mrs. Edw. H. Hardy, Kingston .....1871.	50 00	2	O.
8	SYNOD (1)	The Church .....1865.	80 00	2	S.
9	ST. ANDREW'S	Students, St. Andrew's, Scotland....1862.	50 00	2	S.
10	HENRY GLASS MEMORIAL	Mrs. Glass, Sarnia.....1869.	35 00	2	S.
11	KINGSTON	Ladies of Kingston.....1861.	35 00	3	O.
12	SYNOD (2)	The Church.....1866.	80 00	3	S.
13	ABERDEEN	Students, Aberdeen, Scotland .....1856.	50 00	3	S.
14	CATARAQUI *f*	A Friend, Kingston.....1867.	50 00	3	O.
15	SYNOD (3)	The Church .....1867.	80 00	4	S.
16	SYNOD (4)	The Church	60 00	4	S.
17	COLLEGE *g*	Subscribers .....1872.	50 00	4	O.

FACULTY OF THEOLOGY.

1	LEITCH MEMORIAL (2) *h*	Subscribers .....1867.	$86 00		
2	COLONIAL COMMITTEE (1)	Church of Scotland .....1855.	50 00	1	
3	COLONIAL COMMITTEE (2)	..... " .....1860.	60 00	1	
4	COLONIAL COMMITTEE (3)	..... " .....1855.	55 00	2	
5	COLONIAL COMMITTEE (4)	..... " .....1855.	50 00	2	
6	COLONIAL COMMITTEE (5)	..... " .....1860.	60 00	2	
7	DOMINION *i*	A Gentleman in New Brunswick....1870.	65 00	3	

a Scholarships in Arts have *Endowment Nominations* connected with them, securing exemption from class fees for *one* session, and thereby virtually adding $20 to the given value of each.

b *O*–Scholarships open for competition to *all* students of the year. *S*–Scholarships open only to students for the ministry in connection with the Church of Scotland.

c Awarded for the best oral examination in Arithmetic.

d Competition for this Scholarship takes place in Bath (1872), Kingston, (1873), and Newburgh (1874), Grammar Schools in rotation. The best candidate must acquit himself satisfactorily and produce a certificate of at least one year's attendance at the school.

e Open only to pupils of the Kingston Collegiate Institute. It carries a nomination to a full free course of *four* sessions.

f Awarded for the best written examination on White's Eighteen Christian Centuries, 14–18 inclusive.

g Awarded for the best written examination on the historical portions of the Bible.

h Tenable for three successive years, subject to annual matriculation, except for the third session if spent at a Scottish University. Competitors must have the Degree of B.A. The second *triennial* competition will take place this session.

i Competitors may belong to any Presbyterian Church in the Dominion.

BURSARIES.

These are awarded to deserving students, being matriculants, when preparing for the ministry in connection with the Church of Scotland. Recipients must sign a written obligation to repay the money should they change their intention with regard to the ministry. Recommendations accompanying contributions for the benefit of particular students, whether matriculants or not, are duly observed. (See By-laws.)

UNIVERSITY PRIZES.

I. Prince of Wales.—Probable value $60—for the best papers at the Examination for B.A.

II Montreal.—Value $16—for the best papers at the third Pass Examination.

III. Montreal.—Value $16—for the best papers at the second Pass Examination.

IV. Montreal.—Value $16—for the best papers at the first Pass Examination.

These prizes are given in books.

V. Lewis.—Value $25—for the best exegetical analysis and practical exposition of Matthew VI, verses 9–11 inclusive—to be given in to the Registrar on or before the second Monday of November. Open to Students of Theology.

☞ The first prize in the Chemistry class—value $10—will be given by a graduate.

FACULTY OF MEDICINE.

GRADUATION.

I. Candidates must pass a matriculation examination.

II. They must produce to the Senate, at such time as the Senate may appoint, satisfactory certificates showing—

1. That they are of the full age of twenty-one years.
2. That they are persons of good moral character.
3. That they have been registered, after Matriculation.
4. That they have been engaged in medical studies for a period of four years. (One year's instruction under a qualified medical practitioner prior to attendance upon public lectures is regarded as equivalent to a year at College, and Graduates in Arts may complete their course by three years' attendance upon public lectures).
5. That their attendance upon public lectures has been at least four-fifths of the teaching time of each session, reckoned with regard to each subject mentioned in clause six of this By-law ; provided always that allowance may be made for sickness.
6. That they have attended lectures in the following branches: General and Practical Anatomy, Materia Medica and Pharmacy, Physiology or Institutes of Medicine, andChemistry, two courses of six months each ; and Practical Chemistry, one course of three months ; Theory and Prac- of Medicine, Principles and Practice of Surgery, Midwifery and Diseases of Women and Children, two courses of six months each ; and Medical Jurisprudence, Clinical Medicine, Clinical Surgery, and Botany, one course of three months each ; and that during the first year the attendance has been confined to the four subjects first mentioned.
7. That they have compounded medicines, &c., for two periods of six months, or one period of twelve months, in the office of a duly qualified practitioner, and have attended at least six cases of Midwifery.

III. Candidates must pass an examination on all the subjects mentioned in the preceding By-law ; but the examination may consist of two parts—a *Primary* and *Final.*

IV. Candidates must compose an approved Thesis on some medical subject.

The Degree of M.D. entitles the holder to the diploma of the Royal College of Surgeons, London, on passing the required examination.

Royal College of Physicians and Surgeons, Kingston.

Incorporated by Act of Parliament and Affiliated to the University in 1866.

THE SESSION BEGINS ON THE FIRST WEDNESDAY OF OCTOBER.

TEACHING STAFF.

JOHN R. DICKSON, M.D., M.R.C.P.L., M.R.C.S.E., and F.R.C.S., Edin., President
Professor of Clinical Surgery.

FIFE FOWLER, M.D., L.R.C.S., Edin., REGISTRAR,
Professor of Materia Medica.

HORATIO YATES, M.D.,
Professor of the Principles and Practice of Medicine, and Lecturer on Clinical Medicine.

MICHAEL LAVELL, M.D.,
Professor of Obstetrics and Diseases of Women and Children.

MICHAEL SULLIVAN, M.D.,
Professor of Surgery and Surgical Anatomy.

OCTAVIUS YATES, M.D.,
Professor of the Institutes of Medicine and Sanitary Science.

JAMES NEISH, M.D.
Professor of Descriptive and Regional Anatomy.

THOMAS R. DUPUIS, M.D.,
Professor of Botany.

NATHAN F. DUPUIS, M.A., (Professor of Chemistry and Natural History Queen's University).
Professor of Chemistry and Practical Chemistry.

ALFRED S. OLIVER, M.D.,
Professor of Medical Jurisprudence.

HERBERT J. SAUNDERS, M.D., M.R.C.S.E.,
Demonstrator of Anatomy.

Certificates of attendance at this College are recognized by the Royal Colleges of Surgeons of London and Edinburgh.

The new premises of the College are commodious and convenient. Unequalled facilities are presented for the study of Practical Anatomy, and great advantages for clinical instruction are afforded at the General Hospital and Hotel Dieu.

Full information as to subjects of study, fees, &c., may be obtained on application to the Registrar.

COLLEGIATE INSTITUTE.

RECTOR—SAMUEL WOODS, M.A.

VISITORS—The Arts Professors of Queen's College.

The College Preparatory School and the Kingston County Grammar School, now the City of Kingston Collegiate Institute were united and affiliated to the University in 1862.

Classical and higher English Master...	SAMUEL WOODS, M.A.
Mathematical Master	THOMAS GORDON.
Assistant Classical and English Master	DUNCAN B. McTAVISH, B.A.
French, Writing, and Drawing Master	CARL. E. BOLCHINI.
Preparatory Classes	E. DE ST. REMY.

FEES PER TERM.

1. Junior Classes	$3 50
2. Senior Classes	4 50
3. Preparatory Classes...	4 25

Winter Term begins 7th January.
Spring Term begins first Wednesday after Easter.
Summer Term begins 16th August.
Autumn Term begins on Monday after 15th October.

The Institute is provided with a full and efficient staff of Masters, gives a thorough education, and prepares for the University. Particular attention is bestowed upon the Commercial Branches. The Rector has vacancies for a few boarders.

HONOUR AND PRIZE LISTS.*

SESSION 1871-72.

FELLOWS.

ARTS—John McIntyre, M. A., Kingston.

THEOLOGY—Rev. William Bain, D.D., Perth.

LAW—Hon. Vice-Chancellor Mowat, L.L.D., Toronto.

MEDICINE—W. R. Cluness, B.A. and M.D., Sacramento, California.

GRADUATES.

DOCTOR OF DIVINITY.—Rev. Robert Neill, Seymour, and Rev. William Bain, M.A., Perth.

DOCTOR OF LAWS—Hon. Vice Chancellor Mowat, Toronto, and Rev. George Bell, B.A., Clifton.

DOCTOR OF MEDICINE—(alphabetical list)—James Brien, John Clark, John Gerin, Ashbel Starr Rockwell, Francis Rourk, Montreal.

MASTER OF ARTS—(alphabetical list)—John Agnew, B.A. M.D., Kingston, Rev. Matthew W. MacLean, BA., Port Hope, John McIntyre, B.A., Kingston, Rev. Samuel McMorine, B.A., Huntingdon, Que.

BACHELOR OF ARTS—(order of merit)—1, Archibald P. Knight; 2, Malcolm MacGillivray; 3, James Cormack. Also Rev. William McKee, Deerhurst.

PASS MEN.

ORDER OF MERIT.

THEOLOGY—*Second Year*—Ebenezer Duncan McLaren, B.A.

First Year—1, Robert John Craig, B.A.; 2, Alexander Henry Cameron; 3, John Josiah Cameron, M.A.

ARTS—*Fourth Year*—The three bachelors first named above.

Third Year—1, William Arthur Lang; 2, William Donald; 3, Robert Shaw; 4, Peter C. McNee.

Second Year—1, Donald M. McIntyre; 2, John Inkerman McCraken; 3, George Gillies; 4, James J. Craig; 5, William John Gibson.

First Year—1, William Mundell, with first-class honours in mathematics; 2, George Richard Webster; 3, Robert Walker Shannon; 4, John Herald; 5, Henry Amey Asselstine; 6, Archibald McMurchy; 7, John Ball Dow; 8, Charles McKillop; 9, John Pringle; 10, Alexander Hugh Scott; 11, James McArthur; 12, William Nesbitt Chambers.

MEDICINE—*Primary Examination*—(alphabetical list)—Alfred David, J. Bruce Kennedy; Charles Henry Lavell, Alexander Stewart McLennan, James McMahon, Alvanly Newton Purdy.

For residences of Students see pp. 26, 27.

SCHOLARSHIPS.

ARTS.

1. *Campbell*—William Mundell.
2. *Watkins*—*Robert Walker Shannon.
3. *Leitch Memorial (1)*—George Richard Webster.
4. *St. Paul's, Montreal (1)*—Alexander McRae.
5. *Mowat*—Henry Amey Asselstine.
6. *Allan*—Archibald McMurchy.
7. *Hardy Memorial*—Donald M. McIntyre.
8. *Synod (1)*—James J. Craig.
9. *Synod (2)*—William Arthur Lang.
10. *Aberdeen*—†Peter C. McNee.
11. *Cataraqui*—Robert Shaw.
12. *Kingston*—William Donald.
13. *Synod (3)*—Archibald P. Knight.
14. *Synod (4)*—Malcolm McGillivray.
15. *Supplementary*—James Cormack.

THEOLOGY.

1. *St. Paul's, Montreal (2)*—Robert John Craig, B.A.
2. *Colonial Committee (1)*—Alexander Henry Cameron.
3. *Colonial Committee (2)*—John Josiah Cameron, M.A.
4. *Dominion*—Ebenezer Duncan McLaren, B.A.
5. *Leitch Memorial (2)*—John Francis Fraser, B.A., (retains it from last year).

UNIVERSITY PRIZES.

ARTS.

Prince of Wales—For the best papers at the Examination for B.A., Archibald P. Knight.

Session 1868–9—Robert Crawford, Kingston.
" 1869–70—Thomas H. McGuire, Kingston.
" 1870–71—Hugh U. Bain, Perth.

Montreal—For the best pass papers, *third year*, William A. Lang.
Montreal—For the best pass papers, *second year*, Donald M. McIntyre.
Montreal—For the best papers, *first year*, William Mundell.

THEOLOGY.

Lewis—For lecture on first Psalm, Ebenezer Duncan McLaren, B.A.

CLASS PRIZES.

Classics—*First Year*—1, William Mundell; 2, George R. Webster. Honourably mentioned—John Herald, Robert W. Shannon, John B. Dow, Thomas D. Cumberland.

Second Year—Donald M. McIntyre. Honourably mentioned—John I. McCraken, George Gillies.

Third Year—William A. Lang. Honourably mentioned—Peter C. McNee.

Fourth Year—Archibald P. Knight.

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*With the honour of gaining the Mowat Scholarship.

†With the honour of being equal to Shaw in the competition for the Cataraqui Scholarship.

MATHEMATICS—*Junior*—1, William Mundell; 2, George R. Webster. Honourably mentioned—Robert W. Shannon, Archibald McMurchy, Henry A. Asselstine. *Senior*—1, Donald Malcolm McIntyre; 2, George Gillies.

NATURAL PHILOSOPHY—*Junior*—William Arthur Lang, Robert Shaw, equal. *Senior*—Archibald Patterson Knight.

HISTORY—James Cormack—Honourably mentioned—Archibald Patterson Knight, Malcolm McGillivray.

ENGLISH LITERATURE—Donald M. McIntyre. Honourably mentioned—James J. Craig, John I. McCraken, William J. Gibson, George Gillies. Summer Essay on Shakespeare and his Works—Peter C. McNee.

ENGLISH LANGUAGE—1, William Mundell; 2, Geo. Richard Webster. Honourably mentioned—John Herald, Henry A. Asselstine, Robert W. Shannon, James McArthur, Archibald McMurchy.

FRENCH—*Senior*—W. A. Lang. Honourably mentioned—J. A. Snodgrass, Robert Shaw, William Donald. *Junior*—George Gillies. Honourably mentioned—John I. McCraken, Donald M. McIntyre.

LOGIC—Donald M. McIntyre. Honourably mentioned—John I. McCraken, George Gillies, William J. Gibson.

METAPHYSICS—William A. Lang. Honourably mentioned—William Donald.

ETHICS—James Cormack and Archibald P. Knight, equal. Honourably mentioned—Malcolm McGillivray.

CHEMISTRY—1, Donald M. McIntyre; 2, John Allan Snodgrass. Honourably mentioned—George Gillies.

BOTANY AND ZOOLOGY—William Arthur Lang. Honourably mentioned—Peter C. McNee, John A. Snodgrass, William Donald and Robert Shaw.

MINERALOGY AND GEOLOGY—Archibald Patterson Knight. Honourably mentioned—Malcolm McGillivray and James Cormack.

HEBREW—*First Year*—Robert John Craig, B.A., and John Josiah Cameron, M.A.

Second Year—Ebenezer Duncan McLaren, B.A.

DIVINITY—*Junior*—1, Robert John Craig, B.A.; 2, John J. Cameron, M.A. *Senior*—Ebenezer D. McLaren, B.A.

List of Students in Session 1871-2.

FACULTY OF ARTS.

Name.	Year in curriculum.	Residence.
Asselstine, Henry Amey	1	Kingston.
Chambers, William Nesbitt	1	East Williams.
Cockburn, John		Galt.
Cormack, James	4	Kingston.
Craig, James J.	2	Charlottenburgh.
Cumberland, Thomas Dickie	1	Mulmur.
Donald, William	3	Seymour.
Dow, John Ball	1	Whitby.
Fowler, Thomas		Pike Falls.
Gibson, William John	2	Township of Kingston.
Gillies, George	2	Carleton Place.
Glassford, Thomas Stuart		Beaverton.
Herald, John	1	Dundas.
Knight, Archibald Patterson	4	Renfrew.
Lang, William Arthur	3	Almonte.
MacCraken, John Inkerman	2	Ottawa.
Macgillivray, Alexander	1	Collingwood.
Macgillivray, Malcolm	4	Collingwood.
McArthur, James	1	East Williams.
McEachern, Duncan		Lochaber.
McIntyre, Donald Malcolm	2	Kingston.
McKillop, Charles	1	Lanark.
McMurchy, Archibald	1	King.
McNee, Peter C.	3	Perth.
McRae, Alexander	1	Lancaster.
Mordy, John	1	Renfrew.
Mundell, William	1	Kingston.
Pringle, John	1	Galt.
Scott, Alexander Hugh	1	Charlottenburgh.
Shannon, Robert Walker	1	Kingston.
Shaw, Robert	3	Kingston.
Snodgrass, John Allan		Kingston.
Webster, George Richard	1	Lansdowne.

FACULTY OF THEOLOGY.

Name.	Year in curriculum.	Residence.
Cameron, Alexander Henry	1	Nova Scotia.
Cameron, John Josiah, M.A.	1	Prince Edward Island.
Craig, Robert John, B.A.	1	Kingston.
Fraser, John Francis, B.A.	3	Kingston.
Gandier, Joseph		Wolfe Island.
McLaren, Ebenezer Duncan, B.A.	2	Komoka.

UNDERGRADUATES IN MEDICINE.

Name.	Year in curriculum.	Residence.
Bastow, Joseph William	1	Kingston.
Bisset, J.	3	Warsaw.
Brien, James	4	Ridgetown.
Carruthers, George	2	Kingston.
Carscallen, Allen B.	1	Petworth.
Clarke, John	4	Peterboro'.
Cronk, S. D.	3	Northport.
David, Alfred	2	Picton.
Dowsley, David Henry	1	Frankville.
Dowsley, George C.	1	Frankville.
Dingman, William E.	1	Milford.
Ferguson, D. A.	3	Perth.
Ford, Herbert Douglas	2	Kingston.
Gerin, John	4	Cobourg.
Gerow, A. M.	3	Stirling.
Gunn, William A.	2	Kingston.
Jones, John	2	Kingston.
Kennedy, Alexander	1	Bath.
Lavell, Charles H.	3	Kingston.
Maclean, Archibald M.	1	Kingston.
Masson, Thomas	1	Menie.
McAdam, S. T.	3	Pakenham.
McMahon, James	3	Kingston.
McNamara, P. B.	3	Kingston.
Morrow, James J.	3	South Mountain.
Preston, Richard F.	1	Newboro.
Purcell, M. J.	3	Kingston.
Purdy, Alvanly N.	2	Loughborough.
Rockwell, Ashbel Starr	4	Violet.

REPORT OF THE TRUSTEES OF QUEEN'S COLLEGE.

To the Reverend the Synod of the Presbyterian Church of Canada in connection with the Church of Scotland.

The Treasurer's financial statements for the year ending 10th April, duly certified by the Auditors, are herewith submitted.

For the first time since the discontinuance of the legislative grant in December, 1868, the Trustees are able to report an excess of revenue over expenditure. Statement No. 1 shows the excess to be $724 97. It must not be inferred, however, that this surplus indicates that the sources of income have been so completely re-established as to be adequate to meet the expenses of the Institution. It is accounted for in a great measure by special contributions to revenue, one of these being $981 08 (£200 stg.) from the funds of the Colonial Committee of the Church of Scotland. An increase of invested capital is the only reliable means of improving the annual income. No doubt additional investments will be made and larger returns will thereby be obtained, during this year, but estimates carefully prepared by the Treasurer satisfy the Board that, unless contributions to revenue be again received, the next annual report will show a deficiency of between $300 and $400, even should there be no cause for increased expenditure. It is impossible, therefore, to apply any part of this year's surplus to the reduction of the debt caused by the deficiencies of the three years last preceding, and amounting, as stated in the last report of the Board, to $7807 90.

The receipts for the year in connection with the Endowment scheme are shown, in statement No. 5, to have been $14,819 90. The total amount collected since the commencement of the scheme is $92,029 12. This includes $5,450 94 received for revenue, and $790 96 disbursed for expenses incurred in prosecuting the scheme. The whole sum realized for capital is, therefore, $85,787 22, which is subject to the debt mentioned in the preceding paragraph. Of this sum $77,215 54 has been disposed of in securities, which the Treasurer submits in detail, and which the Auditors report to be both safe and advantageous for the interests of the College.

Recalling what seemed to be the almost hopeless condition of the finances a little more than three years ago, the friends of the College have much reason for gratitude on account of the very decided change for the better, which in that time has been brought about. The success which has attended the effort to raise a sufficient endowment may well encourage the belief that remaining difficulties will yet be overcome.

The session just closed has been a pleasant and successful one. The unusually large number of intrants, namely 19—a number not exceeded since the session of 1858-59—is particularly gratifying, especially as not fewer than 9 of them have intimated their intention

of studying for the ministry. This is regarded as the first fruits of the efforts made to obtain students in connection with the prosecution of the Endowment Scheme. Present indications warrant the expectation of a similar increase next session. Of 39 students registered 23 have the ministry in view, and of these 17 attended the Arts classes and 6 the Theological classes. In the affiliated Institutions, namely, the Kingston Collegiate Institute and the Royal College of Physicians and Surgeons, the numbers enrolled were 86 and 35 respectively.

A bequest of $400 by the late Edward H. Hardy, of Kingston, has been received and applied to the general purposes of the Institution, agreeably to the benefactor's directions. Mr. Hardy was a warm friend of the College. He gave $50 per annum, several years doubling that amount, for scholarship purposes, and contributed $500 to the Endowment Fund. A memorial scholarship of $50, given by Mrs. Hardy, retains his name in prominent and useful connection with the Institution.

The gentleman in New Brunswick who was mentioned in last year's report, as having sent $400 for the founding of a scholarship which shall be open to students of any Presbyterian Church in the Dominion, has this year forwarded an additional contribution of $200. The donor of these sums is known to the Trustees only by his liberality.

Among the instances of friendly interest and assistance occurring during the past year may be mentioned a donation of 153 volumes to the Library, by Mrs. Machar, Kingston. These, with other recent gifts, make a total of 292 volumes received from that lady. The collection contains many rare and valuable works. Mrs. Machar also presented to the College a very fine bust of the late Prinicpal Macfarlane of Glasgow University.

For all other good offices, rendered to the Institution since the date of their last report, the Trustees offer their grateful acknowledgments.

Because of the present state of negotiations for a union of Presbyterians the meeting of Synod, to which this report is submitted, will take an important place in the history of the Canadian Branch of the Church of Scotland. It is the earnest prayer of the Trustees that the wisdom which cometh from above may be graciously vouchsafed to the members, and that the results of their deliberations may be to the glory of God and the prosperity of the Church.

All which is respectfully submitted, in the name and by the appointment of the Board of Trustees.

JOHN HAMILTON,

Chairman.

Queen's College, 25th April, 1872.

No. 1—STATEMENT OF ORDINARY REVENUE AND EXPENDITURE OF QUEEN'S COLLEGE AT KINGSTON, FOR THE YEAR ENDING 10TH APRIL, 1872.

REVENUE.		EXPENDITURE.		
		Salaries.		
Grant from Colonial Committee of the Church of Scotland	$1470 00	The Principal	$2200 00	
Temporalities' Board	2000 00	Prof. Williamson	1600 00	
Dividends on Bank Stock	2080 00	" Mowat	1500 00	
Kingston Observatory	500 00	" Murray	1500 00	
Fees—Class and Graduation	52 00	" Mackerras	1400 00	
Interest on Mortgages, Government Securities, Debentures and Bank deposits	4778 89	" Dupuis	1000 00	
Bequest from late E. H. Hardy, Esq.	400 00	" Ferguson	1400 00	
Subscriptions, Donations, &c., viz.:		Registrar & Sec'y to Senate	50 00	
Colonial Committee of the Church of Scotland, £200 Stg. $981 08		Librarian	80 00	
Scotland, £5 Stg. 24 55		Sec'y & Treasurer	400 00	
Canada 510 00		Janitor	300 00	
Interest on subscription to Endowment Fund, 214 46				11430 00
	1730 09	Insurance	145 00	
		Repairs—College	41 76	
		Taxes on Lands	28 65	
		Prize Books	53 94	
		Travelling exp's	167 35	
		Advertising	9 55	
		Printing and Stationery	77 05	
		Cards for Museum	1 75	
		Fee City Messenger — Observatory Lectures	2 00	
		Diplomas	30 00	
		Chemicals	9 65	
		Rent of Janitor's dwelling-house	60 00	
		Tinsmith & Plumber work, Oil, &c	27 11	
		Thawing water pipes	5 10	
		Fuel	153 93	
		Cleaning Rooms	4 55	
		Postages, Telegrams and sundry small disbursements	19 71	
		Gas	3 90	
		Water Rent	15 01	
				856 01
		Balance (surplus)		724 97
	$13010 98			$13010 98

Queen's College, Kingston, 19th April, 1872.

W. IRELAND, *Secretary-Treasurer.*

Certified as correct, as per separate Report.

JOHN KERR,
JOHN CREIGHTON, } *Auditors.*

Kingston, 21st April, 1872.

No. 2—STATEMENT OF RECEIPTS AND DISBURSEMENTS ON ACCOUNT OF QUEEN'S COLLEGE AT KINGSTON FOR THE YEAR ENDING 10TH APRIL, 1872.

RECEIPTS.

Balances—Endowment Funds in Merchants' Bank on 10th April, 1871			$12034 49
Colonial Committee Grant, 1871		1470 00	
Temporalities' Board		2000 00	
Bank Dividends—12 months dividends on 260 shares Merchants' Bank Stock at 8 per cent		2080 00	
Interest—On Mortgages	$1091 67		
On Bank Deposits	673 38		
On Dominion Stock	594 00		
On Debentures	1290 00		
On City of Montreal Stock	637 00		
From Professors, *et al.*	492 84		
	$4778 89		
Less unpaid	370 50		
		4408 39	
Fees—Class Registration and Graduation		254 00	
Kingston Observatory		500 00	
Scholarships and Prize Essays, as per statement No. 4		1661 33	
Funds for Investment—Ralston Mortgage $400 00			
McIsaacs' " on acct. 100 00			
		500 00	
A. Livingston—Arrears of Interest		133 00	
Young Men's Christian Association, do.		54 00	
Bequest from late E. H. Hardy, Esq.		400 00	
Campbell & Macdonnell—Arrears		450 00	
Freehold P. B. & Sav'g Soc'ty, Toronto—Arrears.		124 55	
Subscriptions, &c., to Revenue through Endowment Fund Account—			
Colonial Committee of Church of Scotland, £200 stg	$981 08		
Scotland	24 55		
Canada	510 00		
Interest on Subscription to Endowment Fund	214 46		
		1730 09	
Endowment Fund—Receipts		14819 90	
To be transferred to Endowment Fund		25 00	
			30610 26
			$42644 75

DISBURSEMENTS.

Salaries as per Statement No. 1		11430 00	
Disbursements as per Statement No. 1		856 01	
			12286 01
Fees—Registration, paid Treasurer of Library		152 00	
Apparatus, paid Professor of Natural Philosophy		32 00	
Apparatus, paid Professor of Chemistry		18 00	
			202 00
Scholarships and Prize Essays as per Statement No. 4			1327 00
Kingston Water Works Company, Balance 1871.			50 00
Rev. A. Lewis, paid P. S. Livingston, "Lewis Prize"			25 00
Mortgage—Thos. Raworth (Mowat Scholarship Funds) Invested		450 00	
J. Jardine—(Prince of Wales Scholarship Funds)		300 00	
			750 00
Endowment Fund—Travelling Expenses.	$ 58 47		
Bank Agency	1 35		
Postages & Telegrams	9 22		
Printing &Stationery	1 00		
Investigating application for Loan	2 00		
Commission on Loan	4 00		
Subscription twice paid, returned	4 00		
Transferred to Revenue	1730 09		
		1810 13	
Invested in Mortgages—			
J. R. Trumpour		4000 00	
J Foley		1300 00	
A. Smyth		600 00	
George Raworth		1200 00	
A. Greeley		3000 00	
J. L. Silver		400 00	
Invested in Debentures—			
Township of Bexley		2895 00	
" " Sommerville		2895 00	
Deposited with P. B. Society, Toronto		2041 94	
In College funds		25 00	
Deposited in Merchants' Bank		6911 32	
			27078 39
Cash in Merchants' Bank—General Funds			926 35
			$42644 75

Queen's College, Kingston, 19th April, 1872.

W. IRELAND,
Secretary-Treasurer.

Certified as correct, as per separate Report.

JOHN KERR,
JOHN CREIGHTON, } *Auditors.*

Kingston, 21st April, 1872.

No. 3—BALANCE SHEET, SHOWING THE ASSETS AND LIABILITIES OF QUEEN'S COLLEGE AT KINGSTON ON 10TH APRIL, 1872.

DR.

Royal Charter, cost of		$ 3107 37
Class apparatus		3633 92
Library—Expenditure on		3399 68
Furniture account		1429 09
College Premises		41740 61
Bank Stock—		
160 shares Merchants' Bank Stock at par	$16000 00	
100 " " at 7 per cent. prem.	10700 00	
		26700 00
Young Men's Christian Association of St. Andrew's Church.		54 00
Freehold P. Building Society, Toronto		4965 69
Canada Dominion Stock, viz:—		
Leitch Memorial Funds	2400 00	
Michie Bequest	2000 00	
College Funds	7900 00	
Prince of Wales Scholarship	400 00	
Mowat Scholarship	200 00	
		12900 00
Montreal Public Property Stock		10010 00
Debentures—County of Frontenac	3000 00	
Township of Thorah	4000 00	
" " Caledon	3500 00	
" " Mono	3000 00	
" " Brock	2500 00	
" " Eldon	2500 00	
" " Bexley	3000 00	
" " Sommerville	3000 00	
		24500 00
Bills Receivable		600 00
A. Livingston		66 50
Lands—100 acres W. ½ 19, 2nd Con. Marmora	300 00	
100 " E. ½ 21, 11th Con. Belmont	300 00	600 00
Mortgages on Real Estate, viz:—		
A. J. Macdonnell	4586 55	
D. McMillan	150 00	
George Neilson	1000 00	
J. McMahon	200 00	
John Morton	400 00	
Samuel Woods, *et al*, Trustees	675 00	
Small & Livingston	1900 00	
Thomas Dunn	240 00	
Alexander McIsaacs	175 00	
Archibald Ferguson	6000 00	
J. R. Trumpour	4000 00	
Thos. Raworth, Mowat Scholarship	450 00	
Jeremiah Foley	1300 00	
Alexander Smyth	600 00	
J. Jardine, Prince of Wales Scholarship	300 00	
George Raworth	1200 00	
A. Greeley	3000 00	
J. L. Silver	400 00	
		26576 55
Carried forward		$160283 41

Brought forward		$160283 41
Toronto Scholarship Stock, 3 shares M. B. stock.	$300 00	
Kingston " " 3 " " " .	300 00	
		600 00
Merchants' Bank Endowment Fund Account	6911 32	
Merchants' Bank	926 35	
		7837 67
		$168721 08

Cr.

Endowment New Chair in Theology	$ 1163 22
Michie Bequest	2000 00
Rev. A. Lewis	407 00
Henry Glass, Memorial Scholarship Endowment	500 00
Funds for Investment	2022 96
Bursary Endowments	2309 75
Students in Arts for Ministry (Class Fees)	180 00
Leitch Memorial Funds	2462 03
Scholarships	1785 98
Endowment Fund Account	85787 22
Profit and Loss	70102 92
	$168721 08

Queen's College, Kingston, 19th April, 1872.

W. IRELAND,
Secretary-Treasurer.

Certified as correct, as per separate Report.

JOHN KERR,
JOHN CREIGHTON, } *Auditors.*

Kingston, 21st April, 1872.

No. 4—STATEMENT OF RECEIPTS AND DISBURSEMENTS ON ACCOUNT OF SCHOLARSHIPS AND PRIZE ESSAYS FOR THE YEAR ENDING 10TH APRIL, 1872.

RECEIPTS.

Balance on hand 10th April, 1871, per acct				$1451 65
Prize Essays			$100 00	
Dominion	Scholarship		200 00	
Cataraqui	do.		50 00	
Leitch Memorial	do.	No. 2	86 40	
Mowat	do.		50 00	
Prince of Wales	do.		74 05	
Campbell	do.		80 00	
St. And'w's, Scotl'd,	do.		36 48	
Kingston Ladies'	do.		24 00	
Carried forward			$700 93	1451 65

Brought forward			$700	93	1451 65
Watkins	Scholarship		80	00	
St. Paul's, Montreal,	do.	No. 1	60	00	
St. Paul's, Montreal,	do.	No. 2	60	00	
Leitch Memorial	do.	No. 1	57	60	
Hardy Memorial	do.		50	00	
Synod	do.	No. 1	80	00	
Aberdeen Univ'sity	do.		33	80	
Toronto Ladies'	do.		24	00	
Synod	do.	No. 2	80	00	
Synod	do.	No. 3	80	00	
Synod	do.	No. 4	60	00	
Synod	do.	No 5	50	00	
Colonial Committee Church of Scotland			245	00	
					1661 33
					$3112 98

DISBURSEMENTS.

Prize Essays—Paid Principal for Prizes			$48	00	
Dominion	Scholarship—E. D. McLaren		50	00	
Col. Committee	do. No. 1	A. H. Cameron	50	00	
Col. Committee	do. No. 2	J. J. Cameron	50	00	
Cataraqui	do.	R. Shaw	50	00	
Leitch Memorial	do. No. 2	J. F. Fraser	86	40	
Mowat	do.	H. A. Asselstine	50	00	
Prince of Wales	do.	Prizes $60			
		Expenses foreclosure Ralston Mortgage.. 10			
			70	00	
Allan	do.	A. McMurchy	50	00	
Campbell	do.	W. Mundell	80	00	
Kingston Ladies'	do.	W. Donald	35	00	
Watkins	do.	R. W. Shannon	80	00	
St. Paul's Montreal	do. No. 1	A. McRae	60	00	
St. Paul's Montreal	do. No. 2	R. J. Craig	60	00	
Leitch Memorial	do. No. 1	G. R. Webster	57	60	
Hardy Memorial	do.	D. McIntyre	50	00	
Synod	do. No. 1	J. J. Craig	80	00	
Aberdeen Univ'sty	do.	P. C. McNee	50	00	
Synod	do. No. 2	W. A. Lang	80	00	
Synod	do. No 3	A. P. Knight	80	00	
Synod	do. No. 4	M. McGillivray	60	00	
Synod	do. No. 5	J. Cormack	50	00	
					1327 00
Balance					1785 98
					$3112 98

Queen's College, Kingston, 19th April, 1872.

W. IRELAND,
Secretary-Treasurer.

Certified as correct, as per separate Report.

JOHN KERR,
JOHN CREIGHTON, } *Auditors.*

Kingston, 21st April, 1872.

No. 5—STATEMENT OF QUEEN'S COLLEGE ENDOWMENT FUND ACCOUNT FOR THE YEAR ENDING 10TH APRIL, 1872.

RECEIPTS.

Amount received to 10th April, 1869		$21255 83	
10th April, 1870		33166 73	
10th April, 1871		22786 66	
		77209 22	
Deduct expenses to 10th April, 1871	$ 710 92		
Transfers to Revenue " "	3720 85		
		4431 77	
			72777 45
Received from 10th April, 1871, to 10th April, 1872			14819 90
			$87597 35

DISBURSEMENTS.

Travelling Expenses	$	58 47	
Bank Agency and Express Charges		1 35	
Postages and Telegrams		9 22	
Printing and Stationery		1 00	
Investigating Application for Loan		2 00	
Commission on Loan		4 00	
Subscriptions Returned (twice paid)		4 00	
Transferred to Revenue Account for Subscription, and Interest on Subscription		1730 09	
			1810 13
Balance			85787 22
			$87597 35

Accounted for as follows :—

City of Montreal, 91 shares at 10 per cent. prem.	$10010 00	
County of Frontenac Debentures $3000, at 5 per cent. discount	2850 00	
Township of Thorah Debentures, $2000, at 8¼ per cent. discount	1835 00	
Township of Thorah Debentures, $2000, at 8 per cent. discount	1840 00	
53 Shares Merchants' Bank Stock at par	5300 00	
100 " " " at 7 per cent. prem	10700 00	
Township of Caledon Debentures, $3500, at 5 per cent. discount	3325 00	
Township of Mono Debentures, $3000, at 5 per cent. discount	2850 00	
Mortgages—A. Ferguson, Montreal	6000 00	
T. Dunn, Camden	240 00	
A. McIsaacs, Mara	175 00	
J. R. Trumpour, Hillier	4000 00	
J. Foley, Garafraxa	1300 00	
A. Smyth, Kingston	600 00	
G. Raworth, Ernestown	1200 00	
A. Greeley, Sophiasburg	3000 00	
J. L. Silver, Loughboro'	400 00	
Bills Receivable—Charles Rogers, Toronto	100 00	
Robert Hay, Toronto	500 00	
Township of Brock Debentures, $2500, at 6 per cent. discount	2350 00	
Township of Eldon Debentures, $2500, at 4½ per cent. discount	2387 50	
Township of Bexley Debentures, $3000, at 3½ per cent. discount	2895 00	
Township of Sommerville Debentures, $3000, at 3½ per cent. discount	2895 00	
Permanent F. Building Society, Toronto	4715 69	
Invested in College Buildings	5747 35	
		77215 54
Lent College	1660 36	
Cash in Merchants' Bank	6911 32	
		8571 68
		$85787 22

Queen's College, Kingston, 19th April, 1872.

W. IRELAND,
Secretary-Treasurer.

Certified as correct, as per separate Report.

JOHN KERR,
JOHN CREIGHTON, } *Auditors.*

Kingston, 21st April, 1872.

REPORT OF THE GENERAL COMMITTEE ON THE ENDOWMENT OF QUEEN'S COLLEGE.

To the Reverend the Synod of the Presbyterian Church of Canada in connection with the Church of Scotland.

Owing to sundry interruptions the new work of the past year was less than that of any year since the commencement of the Scheme. The following charges were visited in the course of the summer:—King, East Nottawasaga and Purple Hill, North Easthope, Kippen, Paisley, Williams, Caledon and Mono, Orangeville, North Dorchester, Woolwich, Balsover and Eldon. In all of these the reception accorded to the deputation was most cordial and an active interest in the furtherance of the enterprise was manifested. The Ministers cheerfully rendered most valuable assistance. Subscriptions were obtained to the amount of $2755 77.

So advanced a stage in the prosecution of the Scheme has now been reached that your Committee in reviewing, on this occasion, the whole of the work done, feel themselves called upon to enter into particulars more fully than seemed to be proper in any previous report.

The Special meeting of Synod at which the Scheme was devised, was held in the Church in which the Synod is now met, on the 6th and 7th days of January, 1869, having been convened to consider the position of the College, especially as affected by the action of the Legislature of Ontario in discontinuing the annual grant of $5000 which the College had been receiving in aid of its Arts Department. It having been resolved that "it is of the greatest importance to the interests of the Church and higher education generally that this institution be efficiently maintained," it was proposed "to accomplish the endowment of it to the extent of *at least* $100,000," and it was understood that three years from the first of April following should suffice to determine the success of this proposal, in the event of its not being soon proved to be a failure. Some members of Synod were desirous that a larger amount should be named. All were anxious that more should be got if possible. There were few so sanguine as to expect that the minimum specified would be obtained. Some statements respecting subscriptions and payments will set forth the results of efforts to give effect to the Synod's views.

SUBSCRIPTIONS.

The total amount of subscriptions includes the following :—		$114,082 32
By graduates and alumni		12,846 00
By friends in other churches, Kingston	$6699 00	
Do. do. elsewhere	4390 50	
		11,089 00
Endowment Scholarships, 57 of $500 each		28,500 00
Do. Nominations, 223 of $100 each		22,300 00
Subscriptions not due		739 50
Do. due, but not collected		20,245 70
Do. which cannot be collected owing to the death of subscribers and other causes		3,546 00
Unpaid subscriptions bearing interest		1,330 00
Largest single subscription		6,000 00
Smallest do.		05

86 pastoral charges have been visited from house to house. Subscriptions have been received from 10 places not visited. The total number of subscriptions is 5,207.

PAYMENTS.

The total amount collected includes the following:—		$94,886 62
Donations to revenue	$1600 00	
Interest on subscriptions	1789 50	
Subscriptions from Scotland	2091 45	
Transferred to revenue and therefore used	$5480 95	
Expenses, being total charge for obtaining subscriptions and payments	791 21	
		6,272 16
Transferred to Capital		$88,614 46
and thus accounted for :—		
Invested in securities bearing interest at an average rate of $6 96 per cent. per annum	$77520 54	
On Deposit at 4 per cent	9433 56	
Lent the College	1660 36	
		88,614 46

The annual progress of the collection may be shown in connection with the financial year of the College, thus :—

10 April, 1869	$21,255 82		
" 1870	54,422 56	Increase,	$33,166 73
" 1871	77,209 22	"	22,786 66
" 1872	92,029 12	"	14,819 90
31st May, 1872	94,886 62	"	2,857 50

An appendix to this report gives alphabetical lists of charges visited and other places from which subscriptions have been received, the number of subscriptions in each, the sums subscribed, and the amounts paid (inclusive of interest when allowed by subscribers). In the follow-

ing charges and sections of charges, all subscriptions have been paid—Grenville, Hawkesbury, Laprairie, Nelson, Niagara, North Dorchester, Waterdown and Woolwich.

Although the minimum endowment aimed at has not yet been obtained, the amount of the legislative grant discontinued in December, 1868, has been more than provided for by new revenue to the amount of $5,776, derived from funds collected. This has been accomplished without disarranging or obstructing any of the business in which the Synod is interested. On the contrary, it is believed that the accomplishment of it has had some effect in stimulating the ordinary and general work of the Church.

It must not be imagined, however, that the time has come when the friends of the College can afford to be inactive or unconcerned. The finances cannot be considered as being in a secure and healthy state until the endowment is so augmented as that the revenue from it will meet the whole decrease of income reported last year, namely :—$5,000 from the stoppage of the Government grant ; $1,280 from the suspension of the Commercial Bank ; $250 from the discontinuance of rent for buildings formerly used by the Royal College of Physicians and Surgeons, and $500 on account of the exemption of students from class fees under the system of endowment nominations—in all $7,030. And then the amount reported last year as having been advanced to meet deficiencies in revenue from April, 1869, to April, 1871, namely, $7,807 90, has to be made up.

Estimating the unpaid subscriptions at $12,000, this will give an additional annual return of $720. It is earnestly hoped that the local Treasurers, who have been rendering excellent service to the scheme, will succeed before long in completing the work in their hands, and it is expected that a few thousand dollars in subscriptions will be obtained in charges not yet visited.

Supposing by these means an adequate, but barely adequate, income to be secured there will still be open, to all who desire to see the Institution increasing in strength and efficiency of equipment, abundant opportunities for the exercise of a liberality similar to that which, in these days, is extended to so many Colleges both in the old world and the new.

Meanwhile, as regards this scheme, inaugurated with much anxiety and doubting a little more than three years ago, the first and principal object of it has, with the blessing of God upon hearty co-operation and zealous efforts, been satisfactorily attained. This is one of the best of reasons for continued energy, perseverance and hope.

All which is respectfully submitted.

W. SNODGRASS,
Convener.

Queen's College, 31st May, 1872.

SUBSCRIPTIONS TO ENDOWMENT FUND OF QUEEN'S COLLEGE TO 31ST MAY, 1872, INCLUSIVE.

PLACES.	No. of Subscriptions	Amount Subscribed.	Amount Paid.
Arnprior	61	$ 376 75	274 75
Beauharnois and Chateaugay	51	152 00	132 00
Balsover and Kirkfield	66	275 25	97 75
Beamsville	1	100 00	100 00
Beckwith and Carleton Place	71	759 50	701 00
Belleville	37	589 00	539 25
Brock	60	290 00	241 00
Brockville	57	1356 00	1097 00
Buckingham and Cumberland	51	493 47	361 97
Caledon and Mono	58	104 00	87 50
Chatham, Ont.	58	400 50	343 50
Chatham, Que. and Grenville	86	224 35	208 35
Chelsea	60	204 80	200 80
Clifton	46	880 00	655 00
Coulonge and Litchfield	45	419 00	347 00
Cornwall	83	1774 80	1322 30
Dorchester, North	31	247 00	247 00
Dundas	65	708 50	519 50
Easthope, North	35	310 02	227 02
Eldon	55	250 00	114 00
Elgin and Athelstane	111	390 50	380 50
Galt	113	1131 25	992 26
Georgetown	108	481 50	410 50
Georgina	46	202 00	199 00
Glencoe	40	432 00	55 00
Guelph	62	1502 00	1426 67
Gwillimbury W. and Innisfil	21	157 00	135 00
Hamilton	45	1544 50	1345 00
Hornby and Trafalgar	20	93 50	82 50
Huntingdon	92	378 60	327 10
Kingston	140	20152 00	14291 00
King	14	55 00	50 00
King West	36	420 00	412 00
Kippen	69	114 50	96 50
Lachine	28	460 00	341 50
Lanark	77	800 00	703 50
Lancaster	93	346 25	112 25
Laprairie	21	67 50	67 50
London	57	707 00	380 51
L'Orignal and Hawkesbury	49	654 86	506 86
Macnab and Horton	93	614 50	599 00
Markham	18	405 00	398 00
Martintown	64	700 55	698 55
Melbourne	101	313 34	232 84
Middleville and Dalhousie	92	1162 25	1087 81
Milton	21	462 00	346 00
Montreal	277	26177 70	26309 50
Nelson and Waterdown	34	621 50	621 50
Niagara	28	260 00	260 00
Nottawasaga and Nottawasaga E. [and Purple Hill.	97	673 00	612 87
Orangeville	51	286 50	98 50

SUBSCRIPTIONS TO ENDOWMENT FUND.—*Continued.*

PLACES.	No. of Subscriptions	Amount Subscribed.	Amount Paid.
Ormstown	91	$ 570 00	$ 409 00
Osnabruck	55	462 40	453 90
Ottawa	48	8598 00	6952 50
Paisley and Walkerton	48	397 50	118 50
Pakenham	80	511 00	375 50
Pembroke	3	111 00	11 00
Perth	186	3682 85	3025 95
Pickering	35	456 00	360 00
Pittsburgh	43	168 00	139 50
Point St. Charles	54	204 75	108 25
Port Hope and Knoxville	44	92 82	50 32
Ramsay	65	1251 50	1083 50
Ross and Westmeath	109	910 50	784 00
Russeltown	41	136 50	124 50
Seymour	121	870 50	757 70
Scarborough	67	1333 91	1301 23
Scott and Uxbridge	59	246 25	221 25
Sherbrooke and Windsor Mills	87	165 00	139 00
Smith's Falls	52	786 50	397 85
St. Catherines	6	86 00	31 00
Stirling	44	561 00	497 00
Thorah	22	1485 00	1104 00
Toronto	79	8698 00	6217 00
Tossorontio and Mulmur	38	337 00	167 00
Vaughan	60	717 60	689 60
Westminster	50	524 00	275 00
Whitby	60	658 75	493 05
Williams	72	680 50	376 00
Williamsburg	42	249 00	206 00
Williamstown	115	909 30	861 30
Wolfe Island	64	316 00	164 00
Woolwich	29	48 50	48 50

PLACES NOT VISITED.	No. of Subscriptions	Amount Subscribed.	Amount Paid.
Fredericton, N.B.	1	$ 300 00	$ 100 00
Glanford	1	100 00	100 00
Goderich	1	25 00	25 00
India	1	100 00	100 00
Kitley	1	5 00	5 00
Orillia	1	4 00	4 00
Peterborough	4	2500 00	1624 00
Prescott	1	50 00	50 00
Sacramento, U. S.	1	1000 00	1000 00
Scotland	33	2091 45	2091 45

THE

ROYAL COLLEGE OF PHYSICIANS AND SURGEONS

KINGSTON,

IN AFFILIATION WITH

QUEENS UNIVERSITY,

CANADA.

Nineteenth Session, 1872-73.

KINGSTON:
PRINTED FOR THE COLLEGE AT THE DAILY NEWS OFFICE.
1872.

Teaching Staff.

JOHN R. DICKSON, M.D , M.R.C.P.L., M.R.C.S.E., and F.R.C.S. Edin., PRESIDENT,
Professor of Clinical Surgery.

FIFE FOWLER, M.D., L.R.C.S., Edin., REGISTRAR,
Professor of Materia Medica.

HORATIO YATES, M.D.,
Professor of the Principles and Practice of Medicine, and Lecturer on Clinical Medicine.

MICHAEL LAVELL, M.D.,
Professor of Obstetrics and Diseases of Women and Children.

MICHAEL SULLIVAN, M.D.,
Professor of Surgery and Surgical Anatomy.

OCTAVIUS YATES, M.D.,
Professor of the Institutes of Medicine and Sanitary Science.

JAMES NEISH, M.D.,
Professor of Descriptive and Regional Anatomy.

THOMAS R. DUPUIS, M.D.,
Professor of Botany.

NATHAN F. DUPUIS, M.A., F.B.S. EDIN. (Professor of Chemistry and Natural History, Queen's University),
Professor of Chemistry and Practical Chemistry.

ALFRED S. OLIVER, M.D.,
Professor of Medical Jurisprudence.

HERBERT J. SAUNDERS, M.D., M.R.C.S.E.,
Demonstrator of Anatomy.

Annual Announcement.

1872–1873.

The School of Medicine at Kingston being incorporated with independent powers and privileges under the designation of the "Royal College of Physicians and Surgeons, Kingston," will commence its nineteenth session in the College Building, Princess Street, on the first Wednesday in October, 1872.

The College is affiliated to Queen's University, wherein the Degree of M.D. may be obtained by its Students.

Certificates of attendance at this College are recognized by the Royal Colleges of Surgeons of London and Edinburgh; and either the Degree of M.D. or the License of the College entitles the holder thereof to all the privileges in Great Britain that are conferred upon the Graduates and Students of any other Colonial College.

The new premises of the College are commodious and convenient. Unequalled facilities are presented for the study of Practical Anatomy, and great advantages for Clinical instruction are afforded at the General Hospital and Hotel Dieu.

As a general rule there are examinations once a week in all the classes.

The fees for the different Classes are payable at the commencement of the Session. A Student who has attended two courses in any Class in the College except the Anatomical Demonstrations, is entitled to free attendance in such Class at any subsequent date.

Course of Instruction and Order of Classes.

President: JOHN R. DICKSON, M.D., M.R.C.P. Lon., M.R.C.S. Eng., and F.R.C.S Edin.
(Medical Superintendent of Rockwood Asylum and Surgeon to the Penitentiary.)
Registrar: FIFE FOWLER, M.D., L.R.C.S Edin.

I. Anatomy.

JAMES NEISH, M.D., Professor.

Lectures daily from 9 to 10 A.M.
Class Book—Gray's Anatomy.
Fee for the Course (six months), $12.
Lectures will be illustrated by plates, preparations and demonstrations on the dead body.

II. Institutes of Medicine.

OCTAVIUS YATES, M.D. (Physician to the General Hospital), Professor.

Lectures daily from 10 to 11.
Books of Reference—Dalton's Physiology, and Bennett's or Aitken's Patholgy.
Fee for the Course (six months), $12.
The Lectures of this Course, which embrace Histology, Physiology, General Pathology, and Sanitary Science, will be illustrated by vivisections, demonstrations with the microscope, also plates, drawings, and specimens from the Museum.

III. Materia Medica, Therapeutics and Pharmacy.

FIFE FOWLER, M.D., L.R.C.S. Edin. (Physician to General Hospital), Professor.

Lectures daily from 11 to 12 A.M.
Class Book—Pereira's Materia Medica abridged (Wood's American edition.
Book of Reference—United States Dispensatory.
The Course will be illustrated by coloured drawings and specimens of medical plants and specimens of the various drugs, chemicals, etc.

IV. Botany.

THOMAS R. DUPUIS, M.D., Professor.

Lectures twice a week from 12 to 1.
Class Book—Gray's Structural or Systematic Botany.
Fee for the Course, $6.

V. Medical Jurisprudence.

ALFRED S. OLIVER, M.D., Professor.

Lectures on Tuesdays and Fridays from 12 to 1.
Book of Reference—Taylor's Medical Jurisprudence.
Fee for the Course, $6.

VI. Principles and Practice of Surgery.

MICHAEL SULLIVAN, M.D. (Surgeon to the Hotel Dieu), PROFESSOR.

Lectures daily from 2 to 3 P.M.

BOOKS OF REFERENCE—Miller, Pirrie, Gross, Holmes', Smith's or Druitt's Surgery.

Fee for the Course (six months), $12.

These Lectures embrace the Principles and Practice of Surgery, and Surgical Anatomy. The Course will be illustrated by plates and models, as well as pathological specimens. The use of instruments and the application of surgical apparatus and appliances will be taught. The chief operations will be performed on the Cadaver before the Class.

VII. Theory and Practice of Medicine.

HORATIO YATES, M.D. (Physician to the General Hospital), PROFESSOR.

Lectures daily from 3 to 4 P.M.

CLASS BOOK—Wood's Practice of Medicine. BOOKS OF REFERENCE—Tanner's, Aitken's, and Flint's Practice of Medicine.

Fee for the Course (six months), $12.

VIII. Obstetrics and Diseases of Women and Children.

MICHAEL LAVELL, M.D. (Member of the Medical Council of Ontario, Physician to the General Hospital), PROFESSOR.

Lectures daily from 4 to 5 P.M.

BOOKS OF REFERENCE—Ramsbotham's, Churchill's or Tyler Smith's Midwifery, Thomas or Churchill on Diseases of Women, Tanner on Diseases of Children.

Fee for the Course (six months), $12.

Ample opportunities will be afforded to the Students for studying this important branch practically. The Students will be arranged in classes to attend the Obstetric practice of the Hospital, and Clinical Lectures on the Diseases of Women and Children will be delivered once a week.

IX. Chemistry and Practical Chemistry.

N. F. DUPUIS, M.A. (Professor of Chemistry, Queen's University), PROFESSOR.

Lectures daily from 5 to 6 P.M., illustrated by diagrams, tables, apparatus and preparations. Experiments daily.

BOOKS RECOMMENDED—Fownes' Manual of Chemistry, Roscoe's Elementary Chemistry.

Fee for the Course of Lectures (six months), $12.

PRACTICAL CHEMISTRY.—A systematic course of testing and separation of bases and acids is gone through, with special processes applicable to Medical Chemistry and Toxicology. Instruction is also given in manipulations, in the use and fitting up of apparatus, and preparation of reagents.

Class meets on Mondays and Thursdays from 10 to 11 A.M.

BOOKS RECOMMENDED—Bowman's or McAdam's Practical Chemistry.

Fee, $6.

X. Practical Anatomy.

HERBERT J. SAUNDERS, M.D., M.R.C.S. ENG., DEMONSTRATOR.

Daily Demonstrations on the recent subject.

BOOK FOR USE IN DISSECTING ROOM—Ellis's Demonstrations or Wilson's Dissector.

Fee for each Course of Anatomical Demonstrations and use of the Dissecting Room (six months), $6.

By an Act of Parliament the bodies of convicts dying in the Penitentiary are given for Anatomical purposes. This gives to Kingston very great advantages for the study of Practical Anatomy.

THE HOSPITAL.

The Kingston General Hospital may be attended by Students during their whole period of study, by one payment of $4 at the commencement.

The Hospital has accommodation for 150 beds. The recently erected "Watkins Wing" contains a very large and commodious Clinical Lecture Room and Operating Theatre, so arranged as to afford an opportunity to all Students of simultaneously witnessing the operations.

The Lectures on Clinical Medicine and Clinical Surgery will be delivered in the new Theatre of the Hospital. Fee entitling to attendance on both Courses, $6.

Prof. Dickson, Lecturer on Clinical Surgery.

Prof. H. Yates, Lecturer on Clinical Medicine.

Students will also have the privilege of accompanying the Professor of Surgery in his daily visits to the Hotel Dieu Hospital.

☞ The corporation of the Royal College of Physicians and Surgeons of Kingston possesses advantages and facilities for imparting a thorough and practical training in the different branches of Medical Science unsurpassed by any other College in British North America.

REQUISITES FOR GRADUATION.

The Matriculation and Curriculum of this College are identical with all Colleges in Canada, as prescribed by the Medical Council.

The examinations for Matriculants and for the Medical Council will be conducted in the College Buildings by the Rector of the Kingston Grammar School on the first Tuesday and Wednesday of January, April, July, and October of every year, and will embrace the following subjects, viz: *Compulsory*—English Language, including Grammar and Composition; Arithmetic, including Vulgar and Decimal Fractions; Algebra, including Simple Equations; Geometry—First Two Books of Euclid, Latin Translation and Grammar, First Two Books of Cæsar's De Bello Gallico, and one of the following optional subjects—Greek, French, German, or Natural Philosophy, including Mechanics, Hydrostatics, Pneumatics.

Graduates and Matriculants in Arts in any University in Her Majesty's dominions are not required to pass the Matriculation Examination. Evidence of having passed a Matriculation Examination in any of the Medical Institutions of Canada prior to July 19, 1869, will be accepted.

The Candidate for the Degree of the University or Diploma of the College must have completed a period of four years' study, and have given regular attendance on full courses of instruction in the following branches of Medical Science for at least three Sessions. In the case of Graduates in Arts or those who have spent a year's pupilage in the office of a Medical Practitioner, a period of three years only will be required.

The Candidate must have given regular attendance on Full Courses of Instruction in the following Departments for the periods stated:

I. Principles and Practice of Surgery	Two Full Courses of six months each.
II. Theory and Practice of Medicine	
III. Obstetrics and Diseases of Women and Children	
IV. Institutes of Medicine	
V. Anatomy	
VI. Chemistry	
VII. Materia Medica, Therapeutics and Pharmacy	
VIII. Practical Anatomy	
IX. Clinical Surgery	Two Full Courses of three months each.
X. Clinical Medicine	

XI. Medical Jurisprudence	One Course of three months.
XII. Practical Chemistry	
XIII. Botany	
XIV. Hospital	Twelve months.

The above course of study may have been pursued either wholly in this College, or partly here and partly in some other recognized Medical School. In the latter case at least one full session must have been spent in this College, with attendance on at least four of the above six months courses.

Certificates of attendance on Lectures are received from incorporated Medical Schools in the British dominions, and others recognized by the British Universities and licensing Colleges. Other certificates of attendance on Lectures may be admitted at the discretion of the Faculty.

All Students shall present evidence) of their having compounded medicine for a period of twelve months, or for two periods of six months each, in the office of a regularly qualified Medical Practitioner. And they shall present evidence of having attended not fewer than six cases of Midwifery.

Every Candidate must deliver, before the 15th February of the year in which he proposes to graduate, to the Registrar of the College, a Declaration under his own hand that he is twenty-one years of age, or that he will be so before the day of graduation, accompanied by a certificate of good moral character, a statement of his medical studies, with proper certificates, and a Thesis, composed by himself and in his own handwriting, to be approved by the Faculty.

Each Candidate is examined both in writing and *viva voce*—first on Chemistry and Toxicology, Anatomy, Institutes of Medicine, Materia Medica and Therapeutics and Botany—these subjects constituting the PRIMARY EXAMINATION; secondly, on Surgery, Theory and Practice of Medicine, Medical Diagnosis, Medical Jurisprudence, Obstetrics, Clinical Medicine and Clinical Surgery, and Practical Surgery, which are the subjects of the FINAL EXAMINATION.

Students ready to submit to the Primary Examination, that is, to an examination on the first division of these subjects, at the end of their third year, may be admitted to examination at that time. The Final Examination, embracing the second division of subjects, shall not take place until the Candidate has completed his fourth or last Session.

REQUISITES FOR THE FELLOWSHIP.

Before being admitted to the Professional Examination, the Candidate must produce evidence of being a Graduate in Arts, or undergo an examination equivalent thereto, and of having been engaged in the practice of the profession at least five years.

The fee for the Diploma of Licentiate of the College is $20; for the Degree of M.D., $30; for the Fellowship of the College, $50.

Board can be obtained in Kingston at from $2.50 to $3 a week.

Any additional information may be obtained on application to the President or Registrar.

Kingston, August, 1872.

Queen's University, Kingston.

THE COLLEGE SENATE.

Very Rev. WILLIAM SNODGRASS, D.D.,
Principal and Primarius Professor of Divinity.

Rev. JOHN B. MOWAT, M.A.,
Professor of Oriental Languages, Biblical Criticism, and Church History.

Rev. JAMES WILLIAMSON, M.A., LL.D.,
Professor of Mathematics and Natural Philosophy.

Rev. JOHN MURRAY,
Professor of Logic, Metaphysics, and Ethics.

Rev. JOHN H. MACKERRAS, M.A.,
Professor of Classical Literature.

NATHAN F. DUPUIS, M.A., F.B.S., Edin.,
Professor of Chemistry and Natural History.

Rev. GEORGE D. FERGUSON, B.A.,
Professor of History and English Literature.

Secretary—Prof. Mowat.

Lecturers.

Professor Ferguson—Modern Languages.

Professor Murray—Principles and Practice of Elocution.

Donald Maclean, Esq., M.D—Human Physiology.

Registrar—Professor Murray.

Examiner for Matriculation in Medicine—Samuel Woods, Esq., M.A.

SESSION 1872-73.

The Thirtyfirst Session will begin on the **First Wednesday (2nd) of October next.** Matriculation Examinations will commence on the day after.

The Calendar for 1872–73 contains full information on Subjects of Study, Examinations, Graduation, Fees, Scholarships, &c. Copies may be obtained on application to the Registrar.

AN ADDRESS

DELIVERED AT THE OPENING OF THE
THIRTY-FIRST SESSION OF
QUEEN'S COLLEGE,
Oct. 2, 1872,

BY

PROFESSOR DUPUIS, M.A.

ADDRESS.

It is interesting at times to study the history of a nation—to follow the records of its development as it gradually rises from a weak and petty principality, cowering beneath the frowns of its stronger neighbours, to a first class power boldly asserting its rights and standing ready to defend them in the well tried contest—to contemplate it now, as fears and anxities cover it as with a cloud of terror, then, as victory and triumph break through like morning sunbeams after a night of storm—to hear the clash of arms as fierce hordes attack it from without, or jealous factions raise the standard of rebellion within ; and in the midst of all to see the steady onward tramp of liberty and right ; to feel that the gloom is but the precursor of the day and that even beneath the rule of a tyrant a Magna Charta may proclaim unprecedented privileges to generations then unborn.

But the facts elicited from the study of the progress of a single nation, are but expressions in that great *law* of progress which runs throughout all nations and all times, and underlies the acts of a world.

Perverted man has in all ages sought to stem the current of the world's development, but in all has he been most signally defeated, and his acts have proved a power rather than an obstacle in the progress of enlightened civilization. True progress, of whatever kind, requires opposition, for, like the tree which becomes more firmly rooted as it is more exposed to the trying storm, its foundations stand sure only when all worthless and obstructing rubble has been swept away by the current of adverse opinions and adverse acts. Men may argue

against reform and progress, they may legislate against it, nay they may even battle against it with all their forces, but it is something like youth endeavouring to keep off old age, by resisting to, and trying to find pleasure in boyhood's sports. There has probably never been an age of the world in which the general tendency has not been onward; nor a time within the limits of history when the aggregate acts of mankind, however unseemly they may individually appear to us, or however apparently opposed to all reform, or however mean, or selfish, or great, or noble, have not been more or less mediately, or immediately concerned in winnowing the false from the true, and in sealing to us the great charter of the privileges which we enjoy.

Take for example the period known in history as the dark ages, *i.e.*, the period characterized by the breaking up of the Roman Empire and the planting of new monarchies and kingdoms and powers in its stead, and a little consideration will serve to show it as a great era in the world's progress. In these ages of confusion, so inextricable as to be apparently without law, died out to a great extent that peculiarly vitiated appetite for universal sovereignty which characterized the monarchs of the Roman Empire, and of the Macedonian before it. In these ages passed away that long established and certainly inhumane principle of degrading to the condition of slavery a people of the same country and the same blood, merely because they had been vanquished in the fight; and hence arose that feeling of brotherhood and sympathy among human beings, of whatever colour, which at last loosed the bands of the poor African, and elevated him to the rank of a man.

In these ages the crude and unmatured and more often false philosophy of men who speculated but did not observe, was lost in the ruins of the structure in which it was nourished, and as the decay of fungi and mosses and noisome weeds furnishes a productive mould for the growth of more

useful and valuable plants, so the wreck of ancient philosophy and heathen speculation left a rich ground from which arose purer and better systems. And the close of this period added the keystone to this arch in the way of progress by sweeping down the last remnants of European Polytheism, by degrading the ancient Deities to the region of myth and fable, and by elevating that system of truth which in christianity forms the foundation of all that is great and good in the civilization and enlightened freedom of the present day. Moreover, I do not think that it can be held that the different acts of individuals, with of course certain exceptions, or of nations or generations, in those ages of darkness, were purposely directed by them towards the progress of the world ; for in the great majority of cases they evidently sought merely their own aggrandizement or convenience or pleasure. Besides we have numerous examples where men and powerful bodies of men have put themselves in direct opposition to the introduction of new truths, and those of such a kind as to lead *us* to *wonder* at their perverseness and stupidity. Such was the case when the Paduan Philosopher suffered imprisonment for stating one of the grandest of nature's facts, and cursed the evidence of his own consciousness to satisfy the demands of an Inquisition of Ignorance ; but 250 years after and the world admires the man who was thus persecuted for truths' sake, and looks in contemptuous pity upon the ignorant and intolerant bigotry which moved his persecutors.

Such was the case when Sir Isaac Newton having published his experiments upon the dispersion of light by a prism of glass, was met by the jealousies of others who declared they had performed the same experiments and with totally negative results, and when from the labour of defending his assertions against the attacks of those who from such jealousies would not assent to the evidence of their own senses, or would not experiment lest they might be convinced, this father of Mathematics was compelled to re-

gret that he had given his discoveries to the world.

But these men and their contemptible opposition have sunk into the grave of oblivion, or if remembered, only through him whom they vilified, while the discovery which provoked their ungenerous attacks has become one of the great powers in the hand of the physicist, one of the glasses through which he is enabled to see and read the wonders of nature. Such was the case when the church, from a mistaken conception of its duties, hurled its anathemas against the teachings of Geology, and stigmatized as dangerous persons, and perverters of society, such men as Lamarck and Murchison and Lyell.

But these things were but experiments in the world's great laboratory ; these were the fires which tried scientific opinion, purifying the truth, and casting out the error as dross.

It is thus that the accredited scientific opinion of to-day is not the outcome of favouritism or fancy or empty theory or dreaming speculation, but of inherent worth, for it stands, as truth must always stand, upon its own merit.

The stream of scientific progress has thus been not unruffled in its course. Its windings have been multifarious ; time after time it has been compelled by the force of circumstances to make for itself new channels ; it has been broken up among the boulders of superstition, and public opinion, and a false veneration for whatever was ancient, whether right or wrong ; and it was not until within the last hundred years that it succeeded in acquiring the confidence and support of the popular world by intimately connecting itself with the conditions of human existence, and by administering to the wants and welfare of mankind. It is under these circumstances that the slender rill has widened into the graceful stream, heeding but little, in our times, the obstructions which are cast in its way, and giving to the 19th century that superiority

over its predecessors which has made it a beacon of light upon the ocean of time.

We may congratulate ourselves upon living in an age of science ; in an age when its revelations are fast sweeping away the effete systems of former times and inviting us to contemplate the useful and beautiful in Nature. Let us turn, then, for a few moments at its call and consider some of the things which it has done and is still doing in this century of scientific and mechanical progress.

Men of master minds and carefully trained faculties of observation are investigating with critical accuracy almost everything under the sun, and even that body itself has been laid under tribute to furnish facts for science. We are no longer in a state of ignorant conjecture about the true nature of that luminary, for the delicate perceptive powers of the spectroscope have become to us a new sense by which we are enabled to overstep the intervening 93 millions of miles and to make out with some degree of satisfaction the constitution of the seething photosphere, and to understand the immense forces by which its vapory bosom is agitated. By this instrument the distant stars have been made to write in lines of light and darkness the records of their own analyses, and these records have pointed towards a community of nature, if not of origin, by exhibiting some of the same common elements in every star that has been satisfactorily examined.

The magic forces which thrill the atoms of matter and build up or destroy at the pleasure of the skillful worker, have given us an insight into the wonders of Nature's material architecture, and have swept away whole trains of absurd ideas over which our forefathers wrought and argued and grew angry and grew pleased again in the vain endeavours to prove them true. But Chemistry has been not only a destroyer, but also a most prolific builder, building up from invisible beginnings, at our command, and for our convenience or welfare, hundreds of things which are now in daily

use, but which were not only not known one hundred years ago, but whose use could not even have been conjectured at that time; such are chloroform and phenol and benzol and a host of others. The very gas that lights our streets, although exciting in us no peculiar sensation of wonder, is truly a great chemical triumph; but 60 years ago and even a certain class of scientific men sneered at the idea of lighting a city with gas! If science had heeded those sneers, and yielded to the pressure of public opinion, we might to-day still have been searching for some means of restricting the night-hidden lawlessness which is too common in the dark streets of populous cities. The science of Chemistry has improved our articles of food by teaching us what is wholesome, and what is not so, and by revealing the true nature of the common operations of baking and brewing and cooking—it has decorated our garments with colours more gorgeous than the Tyrian purple, or the sunset hues—it has driven the fell destroyer from many a household by pointing out the necessity for pure air, and the hygienic power of disinfection—it has come to the aid of the sick by furnishing a surer knowledge of disease, and by supplying more potent medicines to the physician—it has in short become a *power* in this nineteenth century unsurpassed in the teeming richness of its operations by any of its sister servants at our command.

Again, the Microscope is a child of the present age, and one of which it need not be ashamed. Its very existence in its present state of perfection must be looked upon as a wonderful scientifico-mechanical achievement, while the facts and startling revelations which it has furnished from a world of previous obscurity has wielded a powerful influence over the conclusions which have been arrived at in many very momentous questions. The Microscope has peopled every nook and corner of this vast world with living inhabitants. Where all was once thought to be dead and inert, sport the monads and vorticelli and myriads of other animalcules, brought up from the misty depths of indefinite smallness as it peers into it with

a searching gaze. Nay, going back along the aons of time it reveals the tiny architects which build up whole continents of stone by their death-wasted tabernacles, and opens to our study a page of that book of nature where- is written the life-history of our earth.

In its application to living beings, it has given us new ideas concerning life and disease and death. It has taught us that life is not the outcome of organization, nor death of de-organization. It has brought from their hiding places many of the minuter plants and animals which prey upon other and higher beings, and worry or destroy their victims under the cloak of disease. Such is the malady formerly known as sausage poison, now known as the ravages of the insidious trichinæ. Such are malaria and the whole range of zymotic affections.

But the instrument has gone even further than this : it has shown us the peculiar corpuscular constitution of the blood ; it has revealed the formation and decomposition of these minute but all-important corpuscles ; it has pointed out their transformation in the living system ; and by opening up to our study the various changes which go to make up the operations so commonly termed vital, but which after all may be but physical and chemical, it has led us to modify in a most material manner our preconceived notions of this mysterious principle. That the question will ever be satisfactorily solved is highly improbable, but we have certainly made great advances upon the crude notions of previous generations, and even now a faint light is struggling through the black clouds of darkness which enveloped the hundreds of centuries that rolled their slow lengths into the oblivious past before the advent of the present one.

Again, in the discovery of the unique properties of that wonderful force whose true nature has as yet proved a puzzle to physicists, Electricity, we have one of the greatest gifts that science has ever made to the world. And however numerous its applications may be at the present time, the first practical one was made less than one hundred years ago. It would now, however, require a volume to tell of the many ways in which it assists in the progress of the world, and conduces to the general convenience and welfare of mankind. In its affinity with the vivid lighting, which

flashes its way in zig-zag lines through the upper air, it has given us a clue to the atmospheric forces which exhibit their power in the thunder storm, and their wonders in the northern aurora. In its application to electrolysis it clothes our iron and brass in garments of silver and gold, and furnishes us with utensils which defy the attacks of insidious rust—like a second Prometheus, it has become a fire-carrier into secret places, and it proves a ladder of safety to the miner and engineer, who tunnel their dark way through the bowels of the earth. It is a source of heat which melts the most refractory substances like wax, and it gives us a light excelled in brilliancy only by the mid-day sun, and which shines from the cliffs of South Foreland and Dungeness as a guiding star to the storm-tossed mariner battling with heaving waves and howling winds in the mi.dst of nights most sombre and dismal aspects. And finally in that most wonderful and unprecedented invention, the electric telegraph, it gives rise to that community of thought and feeling and interest, which is fast binding into one great brotherhood all the families of the world. Of so great importance is this invention in civilizing mankind and in breathing into his soul the true spirit of philanthropy, that as Dr. Siemans lately remarked before the society of telegraphic engineers, "a proposal is seriously entertained by the leading powers of the earth to place telegraphic property upon the highest, I might almost say a sacred basis, by making it inviolable in case of war."

But this age has other children which hold no secondary place in their progenitor's household. Such is the discovery of the mighty power of steam, and its application to the steam-engine, from the toy which amuses the child to the screaming locomotive, or the giant machinery of the iron-clad man-of-war, cutting its way onwards in defiance of the storm. Such is the mystic actinism of light, which in Photography writes the useful the picturesque and the beautiful with a fidelity beyond the reach of the most practised limners of past ages, and lends it powers to surround and charm us with the light-born apparitions of those whom we love or venerate.

This brief sketch of the great scientific discoveries of the last hundred years, and of their almost innumerable applications in minister-

ing to the wants and happiness of man, and in overcoming the obstacles which time and distance, and adverse seasons and inclement weather and other things of a like sort continue to throw in his way, may lead you to suppose that the study of these subjects must hold a very important and conspicuous position in the different educational systems of the present day—such, however, is not the case.

Efforts are being made continually to modify the standard of our educational institutions so as to give a due and becoming prominence to those subjects which entwine themselves about the interests of modern society, but they have as continually to contend against opposition, often from unlooked-for sources. A proper degree of conservativism is in scientific investigations, and in the spread of scientific opinion, or indeed any opinion, a real necessity—that conservativism which is not over-anxious to accept new theory without a sufficient cause and which requires proof, either moral or logical that the new is superior to the old, before exchanging the one for the other—that conservativism which battles boldly for the maintaining of truth in opposition to accepting error.

But there is a spirit of conservativism, unfortunately too common in the world, that sneers at everything which professes to differ from old and venerated opinion, which looks with a certain degree of horror upon the idea of giving up its ancient usages for anything modern, be its worth and importance ever so clearly set forth, which sitting enthroned upon its own greatness, places itself, as far it can do so in opposition to all change, and hence to all progress in scientific thought.

I say a proper spirit of conservativism is useful, and tends to discourage an empty search after theory, without facts upon which it may rest, but that spirit that prefers the stage coach to the railway, or the Canadian bateau to the stately steamer merely because the former are ancient and the latter modern, would truly make itself ridiculous; and yet a spirit of the same nature *has* been abroad in the world, and even *now* it is met with more often than is desirable. It is this species of conservativism, this mistaken veneration for the times and customs which are past that places itself in the way of Reform. We have already had examples which tend to illustrate this, but we may adduce a few more very peculiar ones.

Take for instance the introduction of vaccination by Dr. Jenner, when as his biographer states, "scepticism and ridicule met him everywhere. In 1798 he first published his enquiry into the causes and effects of variolæ vaccinæ, which excited great interest, but the practice met with opposition as severe as it was unfair, and it was only after seventy of the principal physicians and surgeons of London signed a declaration of their entire confidence in it that it was considered a success." But mark what followed, so soon as it had gained public confidence, "an attempt was made to deprive Jenner of the merit of his discovery," but fortunately it most signally failed, and vaccination now appears under the phase of a boon to society. And still there is that foolish spirit of conservativism abroad that incites some would-be-ancient fathers of medicine at the present day to waste their time in endeavouring to prove that vaccination is an evil instead of a good, while in the very face of their arguments, some of the reports of the Philadelphia small-pox hospital, during the past summer, showed that of those small-pox patients who had been vaccinated something less than 2 per cent. sank under the disease, while the mortality among those who had not been vaccinated was upwards of 56 per cent.

Again, when anesthetics were first introduced into surgical operations, a certain class strenuously resisted their introduction, upon the ground that pain was a wise dispensation of Providence, and that to use any means of overcoming the writhing anguish consequent upon even amputations was interfering with the Divine plan. But such reasoners might as well hold that because pestilence and famine are Providential things, men should not resort to disinfectants in order to prevent the one, or to the railway and telegraph in order to overcome the dire effects consequent upon the other.

Again, the history of some of our greatest inventions, are but records of opposition and consequent failures—but examples of how uncharitable the public can be to its benefactors.

As another example we have the question of the university education of women. This subject has been laughed at, and caricatured, and

presented under the most ridiculous phases by one party, while it has been supported by all the logical powers of another. Its friends have supported it as a growing necessity arising out of the present conformation of society and the world—its enemies have derided it, not because they could show any reason why women should not receive a university education, but because they had no precedent in former times of women having done so. How the contest will end is scarcely a matter of question, for the first important step towards a solution has even now been made by the decision of the Scotch courts, in which ladies are found entitled to all the privileges of medical students, and to graduate in medicine at the university; and if this one profession is thus opened to them, who can say that the others will not also be opened in due time.

Instances like the above, in which the squeamishness or perversity, not of the ignorant, but of the educated have become huge stumbling-blocks in the way of progress, might be increased *ad libitum*, but these will suffice to show the character of the opposition and most usually illogical opposition, which is raised against everything that departs from old established opinions.

At the present time this spirit of veneration for old forms and institutions assumes a different and a milder phase, and sitting ensconced in many of our educational institutions, endeavours to do by clever persuasion what it can no longer effect by open force. Thus we hear it saying that the study of science does not elevate or train the mind, but it scarcely dares assume that at the present day the scientific men of the world are one whit inferior in mental power and acumen to the literary ones. Besides *where* are the faculties of observation and comparison, those two great faculties of the human mind to which all the active ones may be referred, more peculiarly exercised and strengthened than in the study of any of the natural sciences.

Again, it says that the old-style of non-scientific but liberal education is intended for and best suited to professional men. I question, however, whether such an assertion will bear investigation; for it is quite possible that clergymen might find a most prolific source of effective illustration in the facts

of natural science ; and every one knows with what difficulties legal gentlemen have to contend, in acquiring a sort of hashed knowledge of science when preparing to conduct a case of steam-boiler explosion, or criminal poisoning, or of anything which implies a knowledge of scientific facts. And as for physicians, they have a system of science, or whatever it may be called, especially adapted to their wants ; for after all men's bodily troubles are probably more uniform in kind than either their mental or their legal troubles.

Again, it says that scientific education is not a liberal education—that gentlemen are not supposed to study the useful, but the ornamental. This principle might have done a good work in the world at a time when the distinction between a gentleman and a commoner was much more sharply defined than at present—in an age when the educated were the rich, who lived upon the earnings of their serfs, and when the policy was to keep the working classes in ignorance in order that they might be kept in subjection. But I am not sure that this was the intention of a liberal education even then, for we must remember that nearly all the important sciences with their profitable applications were discoveries of a much later period, and consequently that they *might* have been introduced into their curriculum if they had been known.

Be this as it may, it is not a matter of choice with *us* whether we will have scientific teaching or not, but a matter of necessity. The means of living in a country so crowded in population as most enlightened countries are at the present time, demand it—the precariousness of the distinctions now existing between the rich and the poor, the high and the low, the noble and the ignoble, demand it—the progressive movements of the world's development, by which the intellectual in its discoveries and inventions rises higher and higher above the physical, demand it—and men have practically replied to the demands, and have said by their acts that if our Universities will not make provision for supplying such demands, our schools of technology and the arts, established for the express purpose, will—if the former will keep to their ancient way and continue to lavish their all upon it, forgetting the beautiful territory that skirts the road on either side, and persistently refuse or neglect

to take possession of that which might be and should be theirs, then we will transfer it to the latter ; and such is being done, especially in Great Britain, and the ancient seats of learning are gradually, but surely losing their former prestige and their power.

Finally, it must be understood, that those scientific Reformers, if I may be allowed the expression, are not influenced in their acts by a desire of seeing science supplant all other branches of education ; they are by nature too liberal for this. They have not asked that the teachings of science should be made paramount ; they merely seek for it that position of equality which it deserves. They have not sought to place it upon the top of the mountain, but they are decidedly unwilling that it should lie neglected at the foot.

They do not complain that their special subjects have not been introduced into the list of University studies, for in many cases sheer necessity has compelled their introduction; but they are introduced as the poor man, and shown to the lowest seats, they are introduced as a beggar among nobles, as a child among the hoary heads of age. Scientific men complain, because in this age, those subjects which contribute so freely to supply us with those good things of this life which we enjoy, should, through the over-conservative spirit which prevails in many of the older Universities, be degraded to the position of Bye-subjects, and not made even optional at that. They complain, because those subjects which hold a high place among men, from their ability to fit them for becoming eminently useful as citizens of the world, are within the walls of a University, and of many other educational institutions, scarcely thought worth a position or a name. They complain, because young men, who would fain do otherwise, are compelled to employ nearly all their time upon subjects which at the most but exalt the individual, to the exclusion of those which not only enoble the man, but through him, improve and beautify the world.

But the battle has been opened by the eminent thinkers of Great Britain—by men whose whole lives of scientific work have inculcated the grand principle of perseverance—and although, from our more liberal status in this new world the wave may be long in extending to us, yet the decision cannot fail to interest and affect us.

It is a battle of new against old ideas. It is science making war upon the mistaken exclusiveness of ancient systems of education. It is modern thought, with the armaments and forces of modern times, besieging the old and crumbling citadel wherein are gathered the musty rolls of a by-gone age. What the result will be it probably would not be difficult to tell, but what will be the comparative position of modern science in future generations, no man can know. We have but to wait in patience for the consummation, fearless of the result, for out of the theories and systems that perplex the mind of man—those mighty breakers throwing back waves that thrill the world of thought—we may be assured that nothing but the sacred truth will pass unconsumed through the fire of trial.

With Galileo we may say that the world moves, and as it moves physically so it also moves intellectually.

It moves, and many things which were once thought to be impossible, have been accomplished; and many things which were hidden in the abyss of past ages have been brought to light; and many things that have been derided and jeered as the fancies of a maniac, have become established upon a foundation of intrinsic worth.

It moves, and it is ours to keep pace with its progress, not in the wild and unproven theory which exudes from the brain of every speculating man, but in the staid and noble step of *truth* as she marches from conquest to conquest beaming with a pitying love upon her opponents, and speaking joy and satisfaction to those who follow in her train.

The Relation of Philosophy to Science.

AN INAUGURAL LECTURE

DELIVERED IN

THE CONVOCATION HALL

OF

Queen's University, Kingston, Canada,

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BY

John Watson, M. A.,

PROFESSOR OF LOGIC, METAPHYSICS AND ETHICS.

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THE RELATION OF PHILOSOPHY TO SCIENCE.

The object of an introductory lecture is to indicate, in a general way, the sphere and limits of the Science which has afterwards to be treated in a detailed and systematic manner. We cannot at present be expected to give more than a vague idea of the topics afterwards to be discussed at length, and may, therefore, seem occasionally to be deficient in that definiteness and accuracy of thought, which are all-important in a teacher of Philosophy. With the view of obviating, as far as possible, the difficulties that unavoidably lie in our way, we propose to discuss, as fully as time will allow, the relation of Philosophy to the Special Sciences; a course which will, by the force of contrast, throw into bolder relief the nature of those problems with which we shall be afterwards occupied.

Truth, from its very nature, is a complete unity, and if it could be proved that the results of one department of human enquiry directly contradict those of another, the whole edifice of knowledge must fall to the ground. For such a disharmony would imply that there is something in the nature of intelligence itself which precludes it from ever attaining to truth. If equal evidence can be brought to shew that what may be proved in one way may be equally disproved in another, we should be forced to take refuge in the unwelcome conclusion that we are the sport of a desire for knowledge that can only lead to irremediable disappointment.

It is, therefore, matter of some surprise that most—we might almost say *all*—of those scientific men who have spoken of the relation of Philosophy to Science, maintain that there is an absolute opposition between these two spheres of knowledge. One of the most eminent living Biologists of England deliberately asserts, and enforces with all the ability for which he is distinguished, the startling proposition, that Philosophy no less certainly leads to Idealism than Science to Materialism. "Follow out the teaching of the one," says Mr. Huxley, "to its legitimate conclusions, and you are forced to admit that matter is a mode of mind; accept the results of the other, and you cannot deny the inference that mind is a mode of matter." That Science inevitably leads to absolute Materialism, or the position that man is simply the product of the forces of nature, Mr. Huxley endeavours to prove upon scientific principles. In all organisms, whether vegetable or animal, there is one common basis of life out of which they spring and which is identical in all, whether it is regarded from the point of view of form, of function or of substantial composition. This physical basis of life, or protoplasm, as it has been called, is found upon analysis to be composed of water, carbonic acid and ammonia. The composition of these in certain proportions gives rise to life, and hence life is due solely to chemical elements. Moreover, as thought or consciousness is dependent upon life, and life upon material elements, it, too, is ultimately resolvable into forces of nature. The conclusion, therefore, to which our author comes is that the most rigid scientific demonstration leads us to believe that man is of the same nature with the ground on which he treads. Let us hear Mr. Huxley's own words: "It may seem a small thing to admit that the dull vital actions of a fungus or a foraminifer are the properties of their protoplasm, and are the direct results of the nature of the matter of which they are composed. But if, as I have endeavoured to prove to you, their pro-

toplasm is essentially identical with, and most readily converted into, that of any animal, I can discover no logical halting-place between the admission that such is the case, and the further concession that all vital action may, with equal propriety, be said to be the result of the molecular forces of the protoplasm which displays it. And if so, it must be true, in the same sense and to the same extent, that the thoughts to which I am now giving utterance, and your thoughts regarding them, are the expression of molecular changes in that matter of life which is the source of our other vital phenomena."

This is the scientific or materialistic side of the theory: philosophy conducts us by a different path to exactly the opposite conclusion. Having led us into "the slough of Materialism," as he aptly calls it, Mr. Huxley would extricate us from it by showing that an inspection of consciousness leads us with equal certainty to the Idealistic position that matter is dependent upon mind. The external world, he says, is only known to us as states of our consciousness, and all knowledge is made up of such states. Some of these we attribute to self and some to not-self, but in either case we never get beyond our own consciousness. By Philosophy we are thus taught a different lesson from that inculcated by Science. Between the two there is an irreconcilable contradiction, and we can only say, that as we neither know what matter nor what mind is *in itself*, but only as it presents itself *to us*, there is probably some method of reconciling their antagonistic deliverances, if the limitations of human thought did not prevent us from ever discovering it.

It does not belong to our province to enter into the scientific question raised by Mr. Huxley—whether, namely, life is the mere product of chemical composition; and we shall content ourselves with remarking that, whether true or false, the theory has not yet been proven. Approaching the problem from a purely philosophical point of view, we shall endeavour to show, that even if it were

established, as a matter of *fact*, that life is evolved from matter, the inference that thought is resolvable into material forces is utterly untenable.

There is nothing new in the assertion of an absolute opposition between Philosophy and Science, Thought and Nature, Reason and Experience: it is, as Mr. Huxley candidly admits, simply the philosophy of David Hume, adjusted to the advances of modern science; and transformed, we may add, from a Scepticism into a Dogmatism. The contradiction here expressed is that which forms the special problem of Philosophy, and has demanded solution from the very dawn of speculation. So soon as man has satisfied his material wants, the sense of a contradiction between what *seems* and what *is*, between the outer world of sense and the inner world of thought, begins to break upon his mental vision; and he awakes to the consciousness that there is an unexplored, supra-sensual realm, transcending all that he has hitherto known. At an early period in the history of a nation this perception of a region higher than the phenomenal world expresses itself in the half-unconscious revelations of poetry, and in the proverbial sayings of men gifted with more than average insight; it is at a late period in the history of thought that it seeks to embody itself in that systematic knowledge which constitutes philosophy. The whole history of philosophy is a record of repeated attempts to give an adequate solution of the problem to which we have referred. The earliest philosophers were unable to give any satisfactory reply, because they aimed at what was beyond the reach of the human intellect; attempting too much they ended by gaining nothing. They vainly strove to answer the question, What is the origin of all things? and it was only when Socrates directed his attention to man himself, seeking to discover the essential nature of thought, that philosophy entered upon its proper task; and although this point of view was afterwards obscured and lost, it has been recovered in modern

times, and philosophy placed upon a secure foundation. This result has not been effected in a day; it has been the slow and gradual growth of all modern systems of philosophy. Now, therefore, that it has been so emphatically declared that Philosophy and Science stand to each other in the position of irreconcilable enemies, the question as to how, by availing ourselves of the wisdom of the past, the contradiction between the phenomenal and the ideal, the world of nature and the world of thought, is to be reconciled, has become an all-important one. It is no solution of the difficulty to be told that it is insoluble; in this way the claim of reason to be heard may be suppressed for a time, but it will inevitably force itself again upon our notice and refuse to be dismissed. To give an adequate reply to this fundamental question would require the unfolding of a complete philosophy, and we must content ourselves with indicating in outline the solution we deem the only adequate one.

Those who tell us that Science and Philosophy lead to directly opposite conclusions, tacitly assume that both are *co-ordinate*, and that the results of the one are not less *ultimate* than those of the other. Science leads to Materialism, Philosophy to Idealism, and we must accept the deliverances of each as of equal value. But is this assumption tenable? or does not the apparent antagonism between the two spheres of knowledge arise from regarding them as co-ordinate, when in reality the one is subordinate to the other and finds its final justification in it? It will be our duty in the sequel to show that the latter is the true alternative: that a clear conception of the legitimate sphere of each will break down the hard opposition which is supposed to subsist between them, and that the asserted materiality of mind results from pushing the boundary of science beyond its proper limits.

The special sciences are, from their very nature and method of investigation, *limited* in their range, and hence can never give more than a limited explanation even of

the class of objects which form their province. They discover truth, but it is only relative truth. Their object-matter is the phenomenal, and whatever advances they may make, they must ever be restricted to the phenomenal. Thus far our scientific men are right in saying that knowledge is limited to phenomena, and that of things in their real essence we have no knowledge; for, properly viewed, the phenomenal world means one side of knowledge taken in abstraction from the other. Now,—not to insist upon the evident fact that each of the sciences is restricted to a particular and limited sphere of investigation—even if we view all the special sciences in relation to each other and as constituting one organic whole, we can only discover relative truth, and we are therefore debarred from rising higher than phenomena, and, consequently, from finding an ultimate explanation. The starting point of science is the world as it appears in ordinary consciousness—the world as independent of thought and made up of a collection of individual and independent things,—and however great its discoveries may be it never abandons this point of view. But in so conceiving the world, Science has made one great abstraction: it has abstracted entirely from self-consciousness or thought, and in so doing it has implicitly *assumed* the materiality of the mind. For if the world is absolutely independent of thought, the latter must be purely *passive* in its apprehension of knowledge, and have no existence except in so far as it is acted upon from without. This, however, is merely another way of saying that the mind is material, for this proposition can have no other intelligible meaning than that all modes of consciousness are transformed forces of nature. It is very easy, therefore, for Mr. Huxley and others to shew that the method of science leads to the conclusion that mind is a manifestation of matter, for this is merely an explicit statement of that which is taken for granted at the outset. Thus we learn at once the proper sphere of science, and the necessity of a branch of knowledge which

shall transcend it and carry up its generalizations into a higher unity. Unassailable so long as it keeps within its legitimate sphere, science inevitably falls into error when it seeks to bring consciousness, as well as the phenomenal world, within its grasp. While it keeps within the range of the material world, its materialism is just, for it is dealing *with* the material; when it applies to thought the same method it adopts in regard to nature, it necessarily falls into grave error. Mr. Huxley, therefore, commits a vital mistake when he assumes that the conclusions of science are as ultimate in their nature as those of a true philosophy; for, to be so, they must explain not nature alone, but also self-consciousness.

The failure of science to reach ultimate truth arises, then, we may say, from its assuming external nature at the beginning; for its very method implies the independent existence, or—what is the same thing—the absolute truth of the outer or phenomenal world. Now it is here where science fails that philosophy triumphs. To the question, What is Nature? philosophy is not content to answer with science, "There are such and such laws of nature," or even, "All material things are indissolubly united together." An ultimate explanation must tell us not only what are the forms or laws of a thing, but what it is *in itself*, in its essence, in its truth. Carry up your generalization of facts as far as you please, conceive nature as a congeries of laws, or, if you will, as a correlation of forces, and we must still ask, What is this unity of forces or laws? What is nature itself? and what is its relation to intelligence? It is only by an appeal to philosophy or pure thought that any adequate answer can be given to such enquiries. Philosophy, unlike the special sciences, does not deal with a particular section of knowledge, but with the essential nature of all knowledge, and hence it aims at revealing ultimate or necessary truth. The statement that knowledge is limited to the phenomenal is true only when applied to common consciousness

and to science; it is the special business of philosophy to transcend the world of phenomena and to disclose the world of real being, by a discovery of the true bond of connection between thought and nature.

From the primary assumption of the absolute independence of the outer world flow other assumptions which essentially belong to the scientific method. Having abstracted from self-consciousness and thus virtually asserted that it is capable of arriving at the highest truth attainable by man, Science necessarily takes for granted a number of logical notions, without subjecting them to a process of criticism. It seems to be merely enquiring into the laws of nature and to be quite passive in its presence, while it is really guided and controlled by categories which are the common stock of the age to which it belongs. These categories it finds in common consciousness; it does not think of enquiring into their origin and testing their validity; nor, indeed, has it, *as* science, a perception that any such investigation is needed. Starting, as it does, with the opposition of subject and object, and concentrating its attention upon the objective world alone, it is the victim of the natural illusion that the categories it brings to nature it extracts from it. It makes continual use of such fundamental notions as *being*, *force*, *cause and effect*, without dreaming of making them an object of special inquiry. Such notions lie at the basis of all thought, and constitute "the diamond net" which envelopes all the material of thought and gives it order, coherence and consistency. The assumption of these categories is at once the strength and the weakness of science: its strength, because without them it could not make a single step in advance; its weakness, because it is led to overlook their true origin and nature. So soon as we seek to discover, prove and concatenate these notions, we see that they must be referred to thought and not to nature, to the inner and not to the outer world; and thus the need of a science which shall exhibit the necessary re-

lation and interdependence of the fundamental notions that underlie all thought and being—the science of *Logic*, the first department of Philosophy—clearly manifests itself to our minds.

It may seem, at first sight, to be of little moment whether we say that these categories belong to nature or to thought; and in one sense this is true. Speaking in an external way, we may say that they belong to both; it is not less true that the category of *causality*, for instance, is evolved by thought than that it is manifested in nature. From another point of view, however, it is of the last importance which of these alternatives we accept; for if these notions pertain to the external world alone—to Nature taken in abstraction from Thought—the mind becomes the mere sport of impressions acting from without, and is therefore materialised. Here again the imperfection of the view which would co-ordinate science and philosophy, regarding them as two parallel lines that never meet, becomes apparent. For it is manifestly a complete inversion of truth to conceive of thought as entirely dependent upon matter, when all that gives meaning to matter is resolvable into thought; it is to degrade self-consciousness by weapons furnished by itself.

We have seen, then, that the special sciences are limited to the relative and phenomenal, and that they contain a number of uncriticised notions, because of their primal assumption of the absolute independence of nature; and we now remark that, for the same reason, their list of categories is defective and incomplete. As Science always keeps within the limits of the phenomenal world, its catagories are unmethodized and limited in number, because they are picked up at random, instead of being obtained by a careful elimination of all that belongs to the empirical consciousness. This uncritical use of these fundamental notions runs through all theories, such as that of Mr. Huxley, which confine themselves to the

scientific method; but it is especially apparent in the reasoning of Mr. Herbert Spencer, chiefly because he has expressed, in a clear and logical way, the legitimate conclusions to be drawn from that method. Following out the result of the special sciences, he arrives at the conclusion that the sensations and emotions in consciousness are equivalents of material forces, and, by inference, that mind is a product of nature.

The main aim Mr. Spencer has in view is to shew that mechanical forces, chemical action, vital energy and the phenomena of consciousness are each resolvable by analysis into manifestations of force and transformable into any one of the others. Space and Time are evolved by a more and more perfect generalization of individual instances of *resistance* to our muscular energies, and are thus reduced to *force.* Matter, scientifically considered, is made up of resistance and extension, the former being the primary notion, the latter the secondary. Motion, again, involves the conceptions of Space, Time and Matter, and as these have been already reduced to manifestations of force, it follows that it also is a mode of Force. We are thus driven to the conclusion that "Force is the ultimate of ultimates; Matter and motion, as we know them, are differently conditioned manifestations of Force; while Space and Time, as we know them, are disclosed along with these different manifestations of Force as the conditions under which they are presented." Now it is admitted by all, continues Mr. Spencer, that Matter is absolutely indestructible, *i.e.*, can never be either increased or diminished; and this admission, converted into scientific language, means that any given quantity of Force always remains the same. Again, it is an established law that, "when not influenced by external forces, a moving body will go on in a straight line with a uniform velocity," and this law properly means that Motion, as well as Matter, is "indestructible." Mr. Spencer, therefore, instead of saying that "Matter is indestructible,"

and that "Motion is continuous," would prefer to comprehend both statements under the one formula, that "Force is persistent." This formula implies that Force never either increases or diminishes *in quantity*; but as there are undoubtedly changes in force, whether manifested in matter or in motion, how is this position to be established? By the fact, it is answered, that the motion which in certain cases seems to be entirely lost, is in reality merely transformed into *equivalent* Forces. Motion that is arrested produces, under different circumstances, heat, electricity, magnetism, light; and all chemical changes are simply modes of Motion or Force. It is further apparent that vital actions are merely transformed chemical forces; and this holds good whether we speak of the plant or of the animal. Finally, consciousness is itself reducible to material Force. The sensations which affect our organs of sense are directly related to external forces, of which they are the equivalents, and are thus new forms of the Force which produces them. Nor can we deny a like genesis to emotions, for the relation between emotions and the physical effects produced by them is quantitatively as exact as that between external agents and the sensations they excite.

We have in this theory a conception of the universe, inclusive of man, in which no sphere is higher than another. Mechanical are transformed into chemical forces, the latter into vital energy, and this again reappears in equivalents of sensation and emotion. The world, to the eye of Science, is thus a vast level plain; to Philosophy, on the other hand, it is, like the celestial orbs in Dante's "Paradiso," an ascending series of realms, of which the first rests on earth and the last terminates in heaven. Beginning with physical forces, Philosophy ascends gradually upwards, through chemical energy and vital action, till it attains to the sphere of man, regarded as a spirit, from which the ascent to God, the first and the last, upon whom all the lower spheres are dependent, and whose nature

alone supplies the key that unlocks the whole universe, is easily and necessarily made.

An examination of Mr. Spencer's reasoning will make this more apparent. His highest conception of the world is that of forces and correlations of forces. The proposition that the given quantity of force in the universe always remains the same, however it may change its outward manifestation, contains two notions, *change* and *identity in change.* Now this will be found upon examination to be simply the category of cause and effect in a concrete form. When a cause is transformed into an effect, it changes its form, but remains virtually the same. In the notion of cause, as of force, we have therefore change and identity in change. The heat of the sun is the cause of evaporation and re-appears in the form of vapour; the condensation of this vapour is the effect of the action of the winds; the rain which falls from the clouds, or, more accurately, the rain which *is* the clouds, is dispersed over a particular tract of land, and, as effect, assumes the form of a river-current. Our notion of cause and effect is therefore simply that of the unity of identity and change—identity of matter combined with change of form; and we are thus entitled to assume that whatever holds good of the relation of cause and effect will also be applicable to the correlation of forces.

Now unless the category of causality adequately characterise the phenomena of life and of consciousness, as it undoubtedly does those of the inorganic world, the reasoning of Mr. Spencer will be vitiated. But no great amount of consideration can be required to prove that this category does not properly apply to the phenomena of the *organic* world. So long as we are speaking of material things, the category of causality is correct and appropriate; it fails when we rise to a higher sphere. In the phenomena of life, we have not simply to explain a relation of so loose and external a character, that one force is completely transformed into another force and ceases to

exist in its first form. This relation is transcended even in *vegetable* life. We do not adequately express the nature of the plant when we say, with common consciousness, that it possesses leaves, stem, colour, or with Chemistry, that it is composed of certain elements, or even, with Mr. Spencer, that it is a manifestation of force. All this is truth, but it is not the whole truth; we have not yet pointed out what distinguishes the plant from a mass of inert matter. From one point of view, then, we may here, in strict propriety, apply the notion of cause; from another, a higher notion is required, which shall at once include and transcend this lower notion. For while the plant exhibits the action of chemical forces, and thus comes under the relation of cause and effect, it also displays phenomena of a much loftier nature. It is not held together *merely* by chemical relations; it cannot be broken up into parts, like a stone, and still remain a plant; for it is a unity which is continuously differentiating itself into manifold variety—a totality that is ceaselessly evolving itself into externality—and this it is which constitutes its Life. The plant, therefore, is inadequately conceived when it is subsumed under the notion of causality or force; its essential nature can only be expressed when it is referred to the higher notion of *life*—a notion which at once includes while it goes beyond the lower notion of causality or force. To view the plant solely under the relation of cause and effect is, in short, to leave out all that is characteristic of it as an organism, and therefore to degrade it to the level of inorganic things. Even if it could be shown that the plant has been developed out of inorganic matter, still, as in that case matter must have contained the plant *potentially*, the latter is *ideally*, or in the order of thought, primordial; and in attempting to reduce the organic to the inorganic, Mr. Spencer has eliminated the higher element to be found in the former, and has thus vitiated the whole of his reasoning.

Now what is true of vegetable life is true in a still higher way of *animal* life. The unity of the former is not so complete that it cannot be broken up into different parts without ceasing to be a unity. Each part of the plant is, to a great extent, a repetition of the other, and is capable of forming a new plant by being simply severed from its parent and placed in proper external conditions. This, indeed, is also true of the lowest type of animal, where the line of demarcation between the vegetable and the animal world is so indistinct that what may in one way be classed as animal, may also be regarded as vegetable. With a more complex structure, however, this difficulty ceases, and we find an organism in which no part exists except for the rest, while the whole are gathered up into an ideal unity that is manifestly more perfect than that exhibited in the highest vegetable organism, and is in complete contradiction to the loose and external unity of inorganic things. It is in virtue of this presence of life in all the parts that the animal has sensation; and hence Aristotle was justified in saying that "the soul (life) is all in the whole and all in every part." The animal is thus determined to evolution *from within* and not conversely, although the possibility of such an evolution is conditioned by the external world. Now exactly in proportion as the animal organism increases in complexity, and at the same time becomes a more and more perfect unity, the category of causality becomes less and less appropriate, so that in the higher organisms its inadequacy is forced upon our notice. For the category of cause, or, if you will, of force, implies as has been said the transformation of one phenomenon into another, and therefore the complete extinction of the former. In life, however, we have not simply one phenomenon ceasing to be, in its transformation into another, but a unity that continually differentiates itself into infinite variety, and by this very process maintains itself. Here, therefore, the notion of causality utterly fails. It is true, indeed, that

as the animal is not only a vital organism, but also exhibits mechanical and chemical forces, it may in one way be subsumed under the notion of cause, but it is only in so far as it is viewed *as* mechanical or chemical—only in so far as we abstract from what is *distinctive* of it, viz. its *vitality*—that this is legitimate. When we wish to designate what is essential to it as an organism, we have, explicitly or implicitly, to leave the notion of causality behind and employ a higher notion.

We have already said that sensation *as* sensation belongs to life and not to thought. A mere sensation is but an affection of the nervous organism, and exists in the animal without implying a *consciousness* of its existence. The animal is in complete unity with its sensations, and has no power of abstracting from them; it is affected by them for a moment, and then they vanish for ever. It is the power of abstracting from sensation, and making it an object of consciousness that distinguishes man from the animals, and renders him capable of thought. Even, therefore, if it could be proved, by the scientific method, that life depends upon a due proportion of certain chemical elements, and consciousness upon life, it would not follow that consciousness is a mode of matter. For consciousness includes the mechanical, chemical and vital forces, while it adds an element of its own higher than either. The notion of causality, which we found to be imperfect even when applied to the organic world, becomes much more inadequate when we reach the higher realm of consciousness. It is by abstracting from what is characteristic of it, that the dynamical philosophers are enabled to give plausibility to the theory that the phenomena of consciousness are but transformed material forces. It may seem, indeed, that little is gained by pointing out that the notions employed by the physicist in the explanation of nature are imperfect; for is it not a fact, it may be said, that consciousness is dependent upon life, and life on matter, and how then

can it still be held that consciousness is not a mode of matter? But the answer is simple: as the conclusion that mind is material is based upon an imperfect use of categories, the whole conclusion is thereby vitiated. Nature is undoubtedly rational, but not *to itself;* it is only in so far as it is brought within the dominion of thought that it renders up its meaning, and the whole progress of thought is a history of the discovery and the deepening of categories. Now these categories science, from its assumptive character, can never prove, and hence its explanations, while relatively true, are not final. In its search for unity, it fails to perceive that no absolute unity can be obtained by simply leaving out all difference, and fixing upon agreement alone, for the differences are not less essential than the agreements. When, therefore, it asks, What are the points of agreement between consciousness, life, chemical action and mechanical force? it overlooks the fact that it has, by asking the question in this way, virtually *assumed* the identity of the highest with the lowest sphere; for what is common to the two extremes can only be that which is distinctive of the *lowest.* If, as we have shown, the various spheres of the universe form an ascending series, in which each higher realm includes while it transcends the lower, we can only adequately explain the highest by gradually descending to the lowest. To make consciousness dependent upon matter is to reason in a circle; for matter has no meaning apart from consciousness.

The bearing of these considerations upon the general question of the relation of Philosophy to Science will be readily anticipated. The dynamical theory of the world, which attempts to reduce all phenomena to manifestations of the "persistence of force," is found to be partial and imperfect, and to be inapplicable so soon as we attempt to apply it to the inorganic world. Legitimate when put forward in explanation of dead, inert matter, it totally fails when applied to animal organisms, with their

wondrous power of continuous adjustment to external circumstances, and their indefinite power of preserving that unity in the midst of diversity which constitutes their life. And when we leave the phenomena of life and sensation, and seek to account by the scientific method for the phenomena of consciousness and thought, the imperfection of the scientific method becomes glaringly apparent. Its plausibility depends upon the assumption that pure sensation and thought are identical, whereas the one completely transcends the other; for, properly speaking, sensation does not belong to thought but to life. When, therefore, consciousness is viewed as a bundle of sensations, not only is its true nature overlooked, but the possibility of knowledge is destroyed. This will be best shown by a summary of the sensational philosophy.

Locke, like our scientific men, starts with the assumption of an external world, complete in itself, and composed of an infinite number of distinct and individual things. Hence thought or consciousness is regarded as a *tabula rasa* on which the world writes. When we ask, from this point of view, how we come to *have* the knowledge we possess, we obtain a wrong answer, because we have asked a wrong question. For if the mind is purely passive, all its knowledge must be got, as Locke held, from sensation, for this is merely another way of saying that all knowledge comes from *without*. But as a sensation is a perfectly immediate, simple affection, and contains nothing but itself, it was easy for Bishop Berkeley to show that Locke, in distinguishing between the primary and the secondary qualities of body—the former being regarded as existing in the external world in the same form as in sensation, and the latter as present only in *us*—laid down an untenable position. For as a sensation exists only as it is known, to speak of an external world beyond sensation is to make a gratuitous assumption. The external world of individual things, therefore, with which Locke started, has disappeared and left be-

hind only a series of sensations belonging to the subject. All existence is now reduced to self and states of self; the objective world, just because it was assumed to be objective or self-dependent, has converted itself into a subjective world of sensations. Moreover, if, in the act of knowledge, the knowing self is purely passive, as Locke maintained, *it* also must be built up, if it exist at all, out of pure sensations. This is, however, but another way of asserting that self *is* this series of sensations—the conclusion deduced by Hume from the philosophy of Locke. All knowledge is thus reduced to a thread of sensations following each other in time. Hume did not, like his follower, Mr. John Stuart Mill, maintain this position dogmatically; but he asserted with perfect justice that it was the legitimate result of the Lockean philosophy. We have thus seen that Empiricism, starting with an external world, seemingly independent, ends with conceiving knowledge as a series of sensations without a self to know them and without an object in which they can be known. It is the contrast between what Sensationalism intended to do, and what it really did, that constitutes the Scepticism of Hume. The fact to be explained was a permanent and *objective* world; the theory propounded to explain this world converted it, instead, into a series of *subjective*, fleeting, simple sensations. It is this contradiction between theory and reality that Hume signalised when he spoke of the absolute opposition between common sense and reason, and which makes his philosophy one of the bitterest sarcasms on human knowledge that has ever been enunciated. It is this contradiction, in another form, that defies the solution of our modern Physicists.

It may seem that Hume, in reducing the philosophy of Locke to a series of sensations following each other in time and spread out in space, had brought it to its utmost simplicity. But Empiricism has a still "lower deep;" for there are two fundamental notions which Hume did not account for—those of Space and Time. Now, assum-

ing for a moment that Time, as Locke argued, is generated by reflection upon successive states of consciousness, the idea of Space still remains to be explained. And if, as is maintained, all knowledge may be reduced to a series of sensations, and therefore to a succession in time, it is evident that the spatial must be evolved from the temporal relation—the position adopted by recent Sensationalists. The reduction of Space to Time must, indeed, be forever unsuccessful: whether we try to derive Space from the simultaneity of different sensations, with Mr. John Stuart Mill, or from the direction and intensity of muscular effort, with Mr. Bain, we attempt an impossible task; for sensations, are, from their very nature, fleeting and individual, and hence can never transform themselves into our conception of a world of permanent and co-existing objects. It is, however, of more importance to observe that it is quite in harmony with the Sensational theory to attempt this reduction, and to regard space as generated out of a temporal succession of sensations. We are thus left with nothing in the universe except a series of impressions, and it will not be difficult to shew that even this series is doomed to disappear before the test of criticism. Sensations, from their very nature, are incapable of mutual relation. The very idea of a sensation is that it is simple, individual, and contains nothing but itself; and hence it no sooner gives place to another impression than it must vanish into non-existence. It cannot exist in relation to another sensation, because relation implies *comparison*, and comparison could only take place if it were capable, as it evidently is not, of objectifying itself and then relating itself to another sensation. Thus, even the "series," which is always tacitly assumed by the Empiricist, involves an assumption he is not warranted in making—the assumption of the mutual relation of different sensations. We are thus compelled to speak of knowledge as a number of disconnected and individual impressions, existing out of relation to each

other, and therefore out of time; and hence Time, as well as Space, has disappeared. It does not mend the matter to say, with Mr. Mill, that the sensations are related by *association*, for as *individual* they cannot relate themselves. Here then we lose the last hold upon the world of reality, for as consciousness can only exist as a relation, and the sensations are *ex hypothesi* out of all relation, they cease to exist; Nature and Thought alike disappear,

> "And, like an unsubstantial pageant faded,
> Leave not a wrack behind."

Absolute Nihilism, then, is the legitimate and demonstrable result of Empiricism. Starting with the absolute independence of nature, and therefore virtually with the assumption that consciousness is entirely dependent upon the material world, it tries to build up the external world and the world of thought out of sensation. The disastrous result of this mode of procedure we have already seen: knowledge is brought into conflict with itself, and finally accomplishes its own destruction. Where then is the fallacy of Sensationalism—for fallacy there must be—to be found? It lies in this, that the essential activity of *thought* has been overlooked. When it is said that nature and thought are evolved out of pure sensations, it is erroneously assumed that sensation in consciousness and sensation out of consciousness—or, otherwise, that life and thought—are convertible. But reflection upon the nature of thought makes the fallacy of such a view obvious. A sensation, as soon as I think it, becomes more than a sensation. In doing so I transform what was before a particular into a universal. As a thinking being I have the power of abstracting from all modes of consciousness and concentrating my attention solely upon myself, the being who thinks. In all the varying operations of thought, therefore, the Ego or Self remains as the permanent factor. And, further, this abstract self, while it seems to be perfectly simple and immediate, is in reality universal, for

each thinking being, like myself, is a self, and for this very reason capable of thought. Now, this self, which is common to all intelligences, is not, like a sensation, perfectly simple; for, from the very fact that it can make itself its *own* object, it contains distinction or difference within itself. And just because I can think away from all my particular states, I am capable of having something as an object of thought; in the very act of apprehending self I apprehend a not-self. Hence the two are inseparably united, and in apprehending an object, I bring it under the dominion of thought, and infuse into it the universality or permanence that belongs to thought. Spirit, therefore, in virtue of Thought, destroys the assumed independence of Nature and assimilates it to itself. The permanence which we ascribe to the outer world is thus produced by the *activity* of thought, instead of being, as is assumed by the Empiricist, *passively* imprinted upon the mind; what we call experience or objectivity, is really the product of the universalising power of reason.

This exhibition of pure thought or the Ego, as the only possible explanation of objectivity is what the great German philosopher, Kant, designates, in his somewhat barbaric terminology, "the synthetical unity of Apperception (self-consciousness)." The process, that is, by which experience is gradually built up is essentially a *synthesis*, and the great imperfection of Locke, leading, as it did, to the Scepticism of Hume, was in regarding it as a mere analysis. We have before us, says Locke, experience, full-formed and complete in itself, and the only object of philosophy is to analyse it into its component elements. It was thus overlooked that all analysis implies a prior synthesis, and hence that no explanation of knowledge can be adequate which bases itself upon analysis alone. To Kant, on the other hand, experience was the result of the synthetical power of self-consciousness. Starting, like Locke, with sensation as one element of knowledge, he held that this of itself can never gener-

ate experience, and that the other element is supplied by thought. Experience is the product of two factors, the one *a posteriori*, or given from *without*, the other *a priori*, or supplied from *within*. Thought for its part has, as the essential and necessary heritage of its nature, the faculty of forming judgments, and in doing so it employs such fundamental notions or categories, as Unity, Reality, Negation, Cause and Effect. Into these categories thought *cannot but* differentiate itself, for they belong to its own inner nature, and to think is to employ them. Hence, also, they are *universal* and *necessary* notions, for otherwise we should have the contradiction of that which belongs to the very essence of thought being limited and contingent. We have thus, on the one hand, a groundwork of sensations, and on the other hand, self-consciousness radiating into a number of necessary notions. Neither separately can give knowledge, for the sensations are nothing until they are thought, or, as Kant expresses it, "sensations are *blind*;" and thought cannot come into exercise without the aid of the sensations, for as the categories are mere *relations*, thought can only use them when it has got something to *relate*, or, in the words of Kant, "the categories are *void*." But now, if thought bring the sensations into relation with the categories, shall we not then have knowledge? Yes, answers Kant, but for one thing: that experience is only possible, on the one hand as a succession of mental states, and on the other hand in the form of objects lying outside of each other; in other words, to complete our theory of knowledge we require to account for Space and Time, which are the conditions of all external or internal experience. Whether then do space and time belong to Thought or to Nature? Evidently to the former, is the answer, for they are necessary and universal, and necessity and universality are the criteria by which we discover what belongs to self-consciousness or is *a priori*. We can now explain how experience is possible. Thought

differentiates itself into the categories, and, by means of the universal perceptive forms of Space and Time, gathers up into itself the sensations which form the material of knowledge. Thus we get a world with objects extended in space and existing in time, and viewed under a variety of necessary relations. To Kant, therefore, knowledge is essentially a synthesis, and a synthesis which is only possible because self-consciousness is the universal that lies at the basis of every experience, and reduces it to a unity. Kant has the honour of effecting a complete revolution in philosophy. Instead of attempting to explain thought by experience, he accounts for experience by thought. It is, therefore, with perfect justice that he regards himself as having done for philosophy what Copernicus accomplished for astronomy. Copernicus, when he found that the motions of the stars could not be explained by assuming them to revolve round the spectator, tried the effect of making the spectator revolve, and the stars remain at rest. Similarly, Kant, finding that Locke's assumption of the absolute passivity of the mind led to the complete overthrow of knowledge, was led to adopt the theory that the mind is essentially *active*, and was thus enabled to explain the fact of experience. He has, therefore, simply followed the method in which all great discoveries have been made—viz., by setting up a theory and regarding it as true or false according as it does or does not account for the facts it has to explain.

To Kant, then, belongs the high merit of pointing out the method which a true Metaphysic must adopt; but he has not himself followed out that method to its ultimate results. An ultimate explanation of knowledge must, as he perceived, be based upon the activity of self-consciousness in all its manifestations, for any other supposition leads to Scepticism and, by an easy path, to Nihilism. But in the "Critique of Pure Reason" there is this essential imperfection, that it does not tell us *how* or *why* thought or self-consciousness developes itself into the in-

finite variety of experience. Thought, the Categories, the forms of Space and Time, and a groundwork of Sensations, are all, *somehow or other*, necessary to constitute experience, but when we ask *why* this is so, Kant has no satisfactory answer to give. *Why*, we may ask, does thought differentiate itself into categories, and what is their number, relative importance and interconnection? *Why*, again, has thought two and only two pure perceptions—those of Space and Time? *Why*, finally, does thought, by means of its categories and pure perceptions, transform sensations into experience? A proper answer to these questions will give a true system of *Metaphysic*.

To this conception of Metaphysic as the science which deals with the ultimate *ground* or *reason* of things, it may be objected that it is a purely suppositious knowledge. There are, it has been said, ultimate truths which, *as* ultimate, are incomprehensible and unthinkable, and which, therefore, from their very nature, cannot be proven. We know *that* they are, we cannot tell *why* they are; for to do so would be to resolve them into a higher notion; which, *ex hypothesi*, is impossible. But this objection arises from a false notion of what proof is. We prove an *a priori* truth when we shew that it belongs to the essential nature of thought, and consequently that without it thought is impossible. The problem of Metaphysic is not simply to find unities in Nature *per se*, or in Thought *per se*, but to shew how, from the very nature of the case, the former must be resolved into the latter, and that only in this way can an ultimate unity that embraces both be obtained. To do this in a strictly systematic way is at present impossible, as it would require the unfolding of a complete system of metaphysic. We must, therefore, content ourselves with shewing that, looking at thought as a whole, and as displayed in the history of the race, it must necessarily pass through certain stages, culminating in ultimate truth. We say *must*, for it can be proven that thought is essentially *dialectic* in its nature,

i.e., that it is impelled on from one stage to another by the inner necessity of its own nature. These stages we shall briefly indicate, premising that they are not to be found by a mere inspection of the individual consciousness, but by an examination of the universal consciousness of mankind. The individual may stop at the first or some succeeding stage, without going through the whole cycle of thought; only in the infinite possibilities of the race is the full stature of the perfect man to be found.

The first and lowest stage of thought is that of the *Sensuous Consciousness;* the peculiarity of which is, not that in it alone the outer world affects the mind through the senses, but that reflection is at its minimum, and hence the object known and the person knowing it are each regarded as simple, immediate and individual. Whether the mind is filled with a number of external impressions or of internal feelings, it accepts either, without any enquiry into their real source or validity; thought is so little active, that it seems entirely passive. A number of sensations, supplied by the various senses, arise in consciousness, and seem to constitute all the truth attainable by man. We, who are at a later stage in the development of humanity, easily perceive that this was an illusion but it never occurred to those sunk in the sensuous stage of thought to question the truth of what appeared in their consciousness. If they had been capable of asking themselves, "What certainty have we that our immediate knowledge is real?" the only answer they could have given would have been: "We know it is real because it *is*, because we *feel* it to be real." But here, the mere *existence* in consciousness of anything is regarded, or would have been regarded if those at this lowest stage of thought had been capable of interrogating themselves, as a proof of reality and objectivity: the two senses of the word "being"—that of a mere predicate, and that of a developed experience of the objective world—being as

yet inseparably interwoven with each other. It is in this identification of what is in consciousness and what is in reality, that the great imperfection of the philosophy of Berkeley consists. The lowest stage of consciousness is formalised, and in this, rather than in his denial of an external world, the great imperfection of his system is to be found. "There is," Berkeley maintains, "an absolute identity of sensation and the conscious self; the *esse* of things consists in their *percipi*—sensation and existence are synonymous;" and hence, because he deals with pure sensations alone, he fails to shew how objectivity, since it is not to be accounted for from without, comes into consciousness at all.

This first form of consciousness may be illustrated by the infancy of the race. The savage is dominated by the individual sensations which come and vanish from his consciousness like shadows. Like a child, he only sees or hears what comes directly before his notice. He has no interest in the external world apart from its subserving his material wants, and hence, when not engaged in hunting or fishing, or in war, he passes his time in a listless indolence, allowing impressions to move through his consciousness without an effort to retain them, compare them, and investigate into their source. Moreover, as he has no evidence for the reality of his impressions except that they *are*, that they pass through his mind, he is a prey to all kinds of superstitious terrors; even his rudimentary ideas of religion contributing to people the world with invisible enemies. As the only evidence he has for the objectivity of his ideas is the mere fact of their existence in consciousness, reality and fiction, the world revealed by his senses and the world conjured up by his terrors, are to him indistinguishable.

It is difficult for us who have advanced beyond this first crude stage of thought to divest ourselves of our acquired notions, and to put ourselves at the point of view of those who knew of nothing beyond it; but it may assist us in

doing so if we compare it with analagous states of our own consciousness. In what, for instance, consists the illusion by which, in dreams, fancies seem realities if not in this, that we assume, without reflection, the validity of what passes through our minds, simply because it does pass through our minds? When we emerge from this realm of unreality the spell is destroyed, because we find, by comparing our fancies with facts we have established by numberless relations to thought, that the former are devoid of the reality or objectivity of the latter. And so the victim of spectral illusions, in which imagination projects images that, at first sight, wear all the semblance of truth, may satisfy himself of their deceptive nature by employing the test of other senses besides sight, and thus converting his uncriticised impressions into definite knowledge. These illustrations may make more apparent the imperfection of the sensuous consciousness, and the logical necessity by which thought is impelled to a higher stage. The mind cannot rest satisfied with taking merely individual things, out of relation to each other, for in doing so it has, unknown to itself, implicitly related them; it naturally and necessarily regards reality, not as a chaos of isolated impressions, but as forming a cosmos in which each thing contains relations within itself, and is related to other things. Thought, excited to greater activity, reflects more carefully upon the objects presented to it, and discovers that they contain many qualities, and must therefore be expressed by manifold predicates. This second stage of thought may be called *Observation.*

The simple belief in the truth of any phenomenon that arises in consciousness has now given place to deliberate reflection upon individual objects and upon their mutual relations. Mediate has been substituted for immediate knowledge, experience for sensuous certitude. Higher categories are applied to objects than mere *being.* The observing consciousness advances beyond the fleeting impressions of sense to things in their concrete reality. On

the one hand, it views objects as composed of various qualities—such as *solidity*, *extension*, *figure*,—and on the other, it soon discovers that it must view them in relation to each other, *i.e.*, as manifestations of such notions as *unity*, *plurality*, *cause and effect*. The plant I see, for example, may be viewed as a concrete object, made up of root, stem and leaves; or again, it may be regarded as a unity, a plurality or a totality—as *a* plant, as possessed of certain definite parts, or as an object that is at once one and many; or finally, it may be referred to the category of causality, since it depends for its existence upon situation, soil and moisture. By the observing consciousness we thus come to regard things as possessed of various qualities, as gathered up into classes, and as interconnected with each other. Common consciousness, and the special sciences in so far as they merely generalise groups of phenomena from observation, belong to this phase of thought, and differ only in the greater or less accuracy of their results.

At this stage in the development of thought we have, then, an objective world, which is composed of individual things mutually related to each other, and which seems to be entirely independent of the knowing subject. To common consciousness and to science, nature has no deeper meaning than this; but to a philosophy explanatory of it the further question must be asked, "What is the relation of the objective world to *thought?*" This is the question to which the "Critique of Pure Reason" seeks to give an answer. Kant assumed the world as it presents itself to ordinary consciousness, and, in the limited extent we have mentioned, to the special sciences, and, by a critical enquiry into the ground of experience, was forced to deny that absolute dualism between thought and nature, which led to Hume's Scepticism, and which has resulted in modern Materialism. Nature or experience, he argued, cannot be accounted for except on the supposition that thought brings a large contribution of its own to assist in

producing and completing it. Neither in thought alone, nor in nature alone, can we find that permanence and objectivity which is assumed both by common consciousness and by science, but can not be proven by either; only by the union of the two—by an orderly interblending of *a priori* and *a posteriori* truths—can this be effected. As, therefore, the philosophy of Berkeley, and of all Sensationalists, interprets the first phase of consciousness, the deeper meaning of the second is revealed in the Metaphysical system of Kant.

Thought is, however, capable of a still further advance than that which is attained by the observing consciousness. It rises above that conception of the world which regards it as a congeries of objects, possessed of different qualities, or grouped together into classes, or related to each other by universal notions; for the very idea of a correlation between facts leads to a more intimate relation than that as yet attained. Thus thought is, by its own nature, impelled to seek higher unities than it has hitherto found, and ends with conceiving the world as a system of *laws*. This stage of thought is the *Understanding*. The phenomena of nature are now transmuted by the action of thought into exemplifications of necessary laws, and thus half-subjective generalizations are raised to objective truths. Science, in so far as it is not a loose grouping of facts, but a collection of laws, belongs to this stage of thought. The special sciences, while they are still limited to the observation and classification of facts, belong to the observing consciousness; when they carry their inductions so far as to find the laws that regulate phenomena, they have come within the range of the Understanding. The advance from the one stage to the other thus consists in finding greater permanence or objectivity in nature, in finding that it is not governed by caprice but by reason.

The philosophical consideration of this mode of thought reveals truth higher than that which is discovered by

those who assume the absolute independence of nature, and therefore the passivity of thought in its presence. It is true that the great object of scientific men is to eliminate all that is subjective, and to interpret nature from itself alone. But this, when examined more closely, only means that we must exclude our *individual* fancies or opinions and hold only that to be a law of nature which all intelligences or universal thought would recognise to be true; for law in its true sense means an inseparable unity, an indissoluble connection, of distinct relations. The Understanding, therefore, has penetrated into the inner soul of Nature and found it to be rational. What, however, is overlooked by those at this stage of thought is that in discovering the laws or necessities of Nature, we have at the same time found that it is a manifestation of *Thought* or *Reason*—the thought, not of this or that intelligence, but that which is participated in by all. And thus, in another way, we come back to our original statement that the special sciences are not fully conscious of the truth they reveal, because of the dualism they assume between nature and intelligence. Viewed from the higher platform of philosophy, the lesson taught us by the progress of science is the continuous discovery of a greater and greater unity between Thought and Nature; and, although Science does not perceive that in mastering nature it is at the same time revealing the thought latent in it, its unchecked progress is a prophecy of ultimate triumph—the reduction of the whole external world to a system of laws—the revelation of the absolute rationality of the universe. The progress of thought has been, as it still is, an ever greater assimilation of nature into itself, and thus to philosophy Thought and Nature are found to be but obverse sides of the same shield.

We have occupied so much time with the logical and metaphysical sides of Philosophy, that we can only add a few words on the contradiction which it is the office of Ethics to solve—that, namely, of Freedom and Necessity.

The metaphysical theory which reduces the nature of man to a bundle of sensations, naturally leads to the ethical theory that he is the slave of uncontrollable feelings and desires against which he is powerless. For if the actions of man are entirely due to natural impluses, any given action will be determined by that impulse which preponderates at the moment; and hence Hume but expressed in clear terms the result of this view when he said, in his incisive way, that "Reason is and must be the slave of the passions." It in no way mends the matter to explain that the basis of duty is to be found in the happiness of the majority; for although this idea, when systematically carried out, *may* lead to a course of conduct that will harmonize with the dictates of duty, it cannot serve as a substantial basis upon which a *system* of Ethics may be reared. The ultimate ground of action is pleasure, and no adequate reason can be given by the Utilitarian why the individual may not act in accordance with his depraved tastes, if they are depraved, whether his conduct will contribute to the happiness or misery of others.

We do not obtain more satisfaction, but rather less, by interrogating any of the Ancient Philosophers; for, as they had no appreciation of the glorious destiny to which man is reserved, they were unconscious that any reply was needed. Man was by them regarded not *as* man, but as a member of the State; and hence the sole method of elevating him was by adding to his natural advantages the endowments and privileges of the few. Aristotle's ideal of humanity, the magnanimous man, is a Greek citizen, possessed of the highest honours the State can confer upon him, and conscious that he is worthy of them; courageous, honest, cultured; contemptuous of the applause of the common mass of men, but pleased with the approbation of the more refined; born of a good family, and prosperous in his worldly affairs; asking favours of no one, or only with the greatest reluctance,

but rejoicing to confer benefits upon others. Such an ideal, it is evident, is only attainable by the privileged few, but by that few may be realised with comparative ease. Now Christianity, by recognising all men as equal in the sight of God, broke down the middle wall of partition between master and servant, cultured and uncultured, and contemplated man simply as man; while, in setting up an ideal of infinite purity, which embodied the essential nature of the human Spirit, it destroyed the self-righteousness of the Ancients and substituted an infinite despair of perfection by showing that "after we have done all we are unprofitable servants." Christianity, therefore, in unveiling the infinite possibilities of humanity, and demanding their realization, necessarily implied the freedom of man, for only as free can he work out his high destiny. How is this demand to be reconciled with the fetters of necessity by which he seems to be enchained?

Much unnecessary confusion has been introduced into this question by the way in which human liberty has been conceived. Freedom, it has been held by the majority of Moralists, can only exist if we can act independently of motives, and even in opposition to them. It requires very little consideration to see that if this is the only possible conception of freedom, man is a slave to the most absolute necessity. He finds himself at his birth restricted by position, circumstances and many other relations to others, which he cannot by any effort shake off. He cannot, further, perform the most trivial act without having *some* motive for it, simply because he is a rational being and not a mere animal. Freedom, therefore, in the sense of exemption from all external influences and restraints, is a mere figment of the brain, invented by a scholastic subtlety and felt to be absurd by the common sense of mankind. But there is a truer and higher way in which freedom may be conceived, which at once secures moral responsibility, and allows for the

influences of society upon the individual. The highest freedom is not that in which we act *without* motives—for that would be mere caprice—but that in which our action is regulated by the highest laws of our nature. The profligate man, who is under the dominion of sense, the capricious man, who is tossed to and fro by every wind of passion, and the wilful man whose only motives are to act in opposition to motives, seem to themselves to be free, but in the light of reason they are in the hardest bondage. He, on the other hand, who regulates all his actions by eternal principles of duty, may seem to be bound by the chains of necessity, but he really enjoys the highest liberty. For he is not subject to any external necessity, but only to the inner necessity of his own nature, in obeying which he purifies and strengthens his will and becomes a master where others are slaves.

The possibility of working out one's freedom through seeming necessity, may be seen in all the relations into which man is brought. At first every one is under apparent bondage to his superiors in the family relation, but in reality this is the means by which a measure of freedom is attained. It is true that he must render implicit obedience to those in authority over him, but in so doing he learns to free himself from an undue accentuation of his own individual desires, and to seek his freedom where alone it can be found—in the subordination of his own will to the good of others. By and by he is liberated from the restrictions of the family, but he finds that he has only thrown off one yoke to take upon himself another and a heavier burden ; he is now a citizen—a member of the State—and as such he not only enjoys the rights of a citizen, but is also bound down by the duties of his new relation, which hold him as by adamantine chains. Here, again, he is free in so far as he voluntarily and cheerfully discharges his duties ; he is a slave if he attempts to avoid them and to throw them upon others. He cannot, further, be a member of the state without being more

than this; for a state is but one of the community of nations, and he who is a member of the one is a member of the other also. He alone, therefore, is free who recognises in every man of whatever country or position that humanity which unites the race by the bonds of a common brotherhood, and who freely discharges the duties he owes to all. He is enslaved who shuts his eyes to this truth and seeks only the satisfaction of his own selfish inclinations.

We cannot conclude this lecture without remarking that the three departments of Philosophy of which we have spoken are intimately related to one of the most important subjects that can engage the attention of the human mind. It is not for us to intrude into the sacred realm of Theology; but this we may say, that Logic and Metaphysic and Ethics were incomplete if they did not, as their final result, lead us up to the Infinite and to God. Philosophy elevates itself above all mere opinions, above all untested assumptions, above all caprice and impulse—in short, above all that is peculiar to this or that individual—and lives and moves in the realm of necessary truth. It shews that man is able to free himself from all unwarranted beliefs and to unveil the secret of the universe, by discovering the essential rationality that, however it may be concealed from those who seek it not, shines through all the outward manifestations of Nature and of Spirit. All men, consciously or unconsciously, participate in universal truth, and thus there is a universal consciousness, given *through* the consciousness of the individual, but in no way *dependent* upon it. In thus revealing necessary truth, Philosophy at the same time reveals Him who is Truth itself. We do not affirm that every man, or any man, can fully comprehend the infinite fulness of the Divine nature; but neither, we venture to assert, need we raise an altar to "the unknown and unknowable God," in whose existence we may believe, but whose nature must be forever concealed from us. The human Spirit, made in the image of God, Nature, "the visible garment of

God," and Duty, the voice of God speaking in the innermost depths of our moral nature, agree in pointing upwards to the Great Being whose essence they unfold. And thus the assurance which Religion gives to the individual man of the existence of a Supreme Being whom he must reverence and love, Philosophy endorses and supports. The fundamental notions with which it is the office of Logic to deal may not inappropriately be termed the plan of the universe as it existed in the Divine mind before the creation of the world; the long but sure path, by which Metaphysic ascends from the inorganic world to the world of living beings, and thence to the realm first of individual consciousness, and next of universal thought, at last terminates and loses itself in the all-embracing glory of God; and the highest lesson that Ethics has to teach is that only by unity with the divine nature, only by the elevation of his individual will to the high standard of duty, can man enter into the glorious liberty wherewith the truth makes free.

I should have preferred closing this lecture without making any reference to the feelings awakened within me upon the present occasion, did I not think it but just—not to use a stronger word—to express my public thanks for the honour which has been done me by my appointment to the chair of Philosophy in this University. Knowing the eminent success which has attended the labours of my predecessors, I feel that my position is a peculiarly arduous one; but this I may be permitted to say, that as the study of philosophy has been to me a source of exquisite pleasure in the past, so nothing could now give me more intense satisfaction than to be assured that I shall be in the future a successful teacher of Philosophy in Queen's University.